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SOUTH CAROLINA FORESTRY COMMISSION



ANNUAL REPORT 1985-1986

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State Budget And Control Board

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APR 29 1998

STATE DOCUMENTS

To Honorable Richard W. Riley, Governor and to the General Assembly
of South Carolina:

Sirs:

Pursuant to Section 3 of Act of General Assembly creating the State Commission of Forestry, approved April 26, 1927, which provides that the Commission shall "inquire into and make annual report upon forest conditions in South Carolina, with reference to the preservation of forests, the effect of the distribution of forests upon the general welfare of the State, and other matters pertaining to the subject of Forestry and tree growth including recommendations the the public generally as to reforestation." I have the honor to submit the report of the Commission for the period of July 1, 1985 to June 30, 1986.

Respectfully Submitted
STATE COMMISSION OF FORESTRY
Eugene H. Kneece, Jr.

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STATE COMMISSION OF FORESTRY

Eugene H. Kneece, Jr., Chairman

MEMBERS OF THE COMMISSION

Boris Hurlbutt, Vice Chairman, Walterboro

Joseph C. Woodward, Sr., Eastover

Henry F. Floyd, Pickens

Joe Brice Williamson, Kingstree

John Edward Bankhead, Richburg

Bartow S. Shaw, Jr., Sumter

William D. Baughman, Summerville

Dr. Max Lennon, President, Clemson University, Clemson

A. Brandon Taylor, Jr., Chairman Emeritus, Spartanburg

ADMINISTRATION

Leonard A. Kilian, Jr., State Forester and Secretary to
the Commission

Claude F. Barden, Executive Assistant to State Forester

Chauncey R. Nichols, Staff Director

John M. Shirer, Assistant State Forester Engineering
Division

Robert J. Gould, Assistant State Forester/Field
Operations

Wray E. Freeman, Assistant State Forester/Administration

ACCOMPLISHMENT SUMMARY

- * Examined and wrote management plans on 3,353 tracts covering 211,110 acres.
- * Suppressed 6,877 fires which burned approximately 38,032 acres. This included one fire in Colleton County May 3 which destroyed over \$2,000,000 worth of timber on 3,500 acres.
- * Grew and distributed 66,364,335 forest tree seedlings.
- * Used Forestry Commission helicopters for the first time to make 77 drops on 5 wildfires.
- * Approved cost sharing applications for 1,041 landowners on 32,941 acres and authorized payments of \$1,903,605 for this work.
- * Coordinated Southern Pine Beetle Control efforts for an outbreak which was the most destructive ever for South Carolina. Assisted in salvage of 8.1 million board feet of the 135 million board feet killed.
- * Provided forest management services on 1,227 tracts for landowners who paid \$167,441 for these services.
- * Planted 358,450 tree seedlings on 483 acres of state forest.
- * Issued 4,705 permits for hunting and fishing on state forest lands returning \$16,147.50 in fees.
- * The Insect and Disease laboratory processed 143 samples and provided control information assistance to Forestry Commission and other forestry interests.
- * Produced 9 video programs on Forestry Commission activities and coordinated Arbor Day programs and Tree City USA programs.
- * Coordinated 1,961 prescribed burns under Voluntary Smoke Management guidelines.
- * Provided training for 899 employees in 8 programs and training for 229 Rural Fire Department personnel in 21 departments.
- * Flew 1,306 hours in contract and Forestry Commission owned aircraft in support of wildfire detection and suppression and other Forestry Commission programs. In addition, provided contract aerial tankers which dropped 20,000 gallons of fire retardant on 19 fires.
- * Distributed \$44,600 to 66 Rural Fire Departments under the Federal Rural Development Act and issued 35 excess federal property vehicles to Rural Fire Defense units in the state.

ADMINISTRATION DIVISION

The Division of Administration supports the Forestry Commission's employees and programs through policies and procedures relating to budgeting, accounting and personnel services.

Personnel Section

The Personnel Section administers personnel management programs and policies for the Forestry Commission. Major program areas are employee relations, classification and compensation, personnel and position records management, recruitment, employee benefits, affirmative action, and worker's compensation.

Workforce

The South Carolina Forestry Commission has a total of 600 authorized full time equivalent positions classified in 55 separate job categories. Of these positions, 574 are funded by state appropriations.

Personnel Turnover

An analysis of employee turnover data reveals that 29 employees left their jobs during the fiscal year. There were 62 employees hired.

Employee Injuries

Most Commission personnel work in positions having a higher than normal risk of injury. The safety program through the leadership of the safety office in the Field Operations Division is directed toward reducing this risk. There were 49 job related injuries reported during the fiscal year, a reduction of 11 from last year.

Affirmative Action

Affirmative Action has become a permanent part of the Commission's operations and was emphasized to supervisors through training sessions as well as by the State Forester. Our Affirmative Action Plan has been approved by the South Carolina Human Affairs Commission.

Purchasing and Property Section

The purchasing section directs and coordinates the purchasing, property control, and warehousing activities. The section establishes specifications for the purchase of all equipment and supplies and supervises the central warehouse function which carries an inventory of uniforms, repair parts, and supplies that are available to field units upon request. Inventory records of Commission equipment and Federal Excess Property on loan to the commission are maintained.

Financial Statement

Fiscal year 1985-86

BROUGHT FORWARD

From Fiscal Year 1984-85	
Federal	59,851.69
Sandhills State Forest	49,375.17
Savings Bond Deductions	93.46
Operating Revenue	167,647.56
Seedling Revolving	575.68
Forest Renewal Assessment	482,175.45
Performance Bonds	4,539.45
Dual Employment	2,144.94
Capital Appropriated	92,000.10
Supplemental Appropriation	789,924.00
Capital Improvement Bonds	-15,807.97

Total Brought Forward 1,632,519.53

RECEIPTS

Operating Funds	
State Funds	
Appropriation	13,294,957.00
Supplemental Appropriation	150,000.00
B&C Board Allocation	860,628.89

Total State Funds 14,305,585.89

Federal Funds	
Federal Grants	732,097.50
Sandhills State Forest	450,468.80

Total Federal Funds 1,182,566.30

Other Funds	
Hunting & Fishing	13,527.50
Pinestraw & Miscellaneous	15,581.99
Land Rents	69,270.30
Timber Sales	263,813.48
Insurance Claims	236.75
Equipment Rents	7,507.73
Sale of Equipment	2,500.00
Forest Products Assessment	545,906.36
Miscellaneous Revenue	200.00

Total 918,544.11

Trust Funds	
Seedling Revolving	59,812.50
Savings Bond Deductions	11,745.00
Performance Bonds	34,208.87
Dual Employment	1,421.83
Note Payment Fund	281,396.84

388,585.04

Capital Funds	
Capital Improvement Bonds	62,837.95

	62,837.95

TOTAL FUNDS RETAINED BY FORESTRY COMMISSION	18,490,638.82
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REVENUE FOR CREDIT TO THE
GENERAL FUND

Burning Assistance Fees	63,703.00
Fire Lane Fees	77,163.21
Timber Marking Fees	3,637.66
Miscellaneous Fees	1,012.41
Nursery & Timber Sales	1,164,098.48
Prior Year Expenditures	1,178.81
Rent Motor Vehicles	20,247.10
Sale of Services	5,414.25
Sale of Junk	169.70
Sale of Property	91,849.95

Total General Fund	1,428,474.57
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GRAND TOTAL FUNDS AVAILABLE	19,919,113.39
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DISBURSEMENTS

Transferred to General Fund	1,428,474.57
Transfer-Payment for	
Seed Orchard Development	177,400.00
Appropriation Lapse	84,080.81
Expenditures	16,103,213.49
Distribution of Trust Funds	94,895.76
Appropriation Reduction	283,408.00

Total Disbursements	18,171,472.63
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BALANCE CARRIED FORWARD	1,747,640.76
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Detail - Carried Forward

Supplemental Appropriation	175,000.00
Sandhills State Forest	216,026.87
Operating Revenue	382,328.48
Forest Renewal Assessment	682,519.96
Federal	92,308.66
Seedling Revolving	5,958.21
Savings Bond Deductions	110.96
Performance Bonds	13,576.80
Capital Appropriated	75,813.98
Note Payment Fund	103,996.84

	1,747,640.76
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ENGINEERING DIVISION

The Engineering Division provides staff service to all units of the Forestry Commission in matters relating to communications, transportation of supplies and equipment, maintenance of equipment and permanent improvements and new construction projects.

Radio Communications

The Forestry Commission radio system includes radio units in every fire suppression unit, transport, tower, ranger truck and overhead supervisor responsible for fire suppression. The Columbia Office, District offices, two State Forests and two nurseries are radio equipped. All rangers and foresters are equipped with portable radio sets. All aircraft as well as contract aerial tankers are radio equipped.

During the year, the Walterboro District Office radio system has been improved with the addition of a UHF radio control loop connecting the office with the microwave antenna tower at Cottageville.

Forty two replacement mobile radio sets for tractors and forty eight new portable radio sets were purchased this year.

Equipment Construction And Maintenance

All regular and specialized fire control equipment is modified and processed for field use at the Commission's Central Repair Shop in Columbia. During the year central shop personnel made numerous repairs to Forestry Commission vehicles and equipment and manufactured many special fire control and forest management items. Some of the work conducted at the central shop included:

- . Modification of truck transport bodies
- . Repair of medium tractors for field use
- . Modified and repaired specialized equipment for use in aerial tanker program
- . Rebuilt wrecked equipment
- . Provided maintenance assistance to the district repair shops
- . Performed major equipment overhauls and repairs on field equipment

Equipment Replacement

During the year the following fire control replacement equipment was purchased:

- Four (4) tractor transport trucks
- Four (4) crawler tractors

Nine (9) 1/2 ton ranger pickup trucks
Three (3) 3/4 ton mechanic pickup trucks
Two (2) radio technician vans with special bodies
Four (4) fire plows

All new equipment purchased was processed through the central repair shop and adapted to the specialized job of forest fire suppression and other duties.

Construction And Maintenance

The Forestry Commission, using Commission personnel, constructed one large office building and made necessary renovations to existing buildings located at tower sites and Commission owned offices. The major improvements and purchases include:

- . Completion of 3,300 sq. ft. district office building at Walterboro
- . Completion of office addition and renovation of a caretaker's residence at the Niederhof Seed Orchard
- . Replacement of four oil fired heating units at the Central Repair Shop
- . Purchase of 15.23 acres of land for the Newberry District Office-Shop complex

FIELD OPERATIONS DIVISION

The Field Operations Division provides operational and technical staff direction to the Forestry Commission field organization in each of the major program areas of forest management, forest fire protection, nurseries and tree improvement, information and education, forest insects and diseases, and overall agency training

Forest Management Section

The Forest Management Section assists South Carolina citizens with management and development of the forest resources of the state. Programs include Woodland Management Assistance, Reforestation Programs, Forestry Services, Forest Products Utilization and Marketing Assistance, Resource Conservation and Development, and Watersheds. These programs assist owners in growing more timber, aid industries in more efficient utilization of the timber resource, and foster conservation of the forest resource.

There are 12.5 million acres of forest land in South Carolina. According to the 1978 U. S. Forest Service Survey, 73% of the land is owned by farmers and miscellaneous private owners. Forest industry owns approximately 18% with 9% in public ownership.

Based on the 1983 Interim Pine Survey approximately 233,000 acres of pine sites are harvested each year. Of this total, an estimated 178,000 acres are regenerated adequately, either naturally or by planting while approximately 55,000 acres are left without adequate regeneration. To improve this situation the Forestry Commission is cooperating with the S. C. Forestry Association, The Tree Farm Committee, and Clemson Extension Service in a Forest Productivity Task Force. The Task Force has organized County Committees to contact landowners with cutover or unproductive lands and encourage them to reforest this land.

Woodland Management Assistance

Professional foresters of the Commission provide forest management advice and assistance to landowners. The land is examined and a written forest management plan is prepared. Recommendations for management may include silvicultural practices, forest protection, reforestation, harvesting, prescribed burning, wildlife habitat improvement, and recreation. This year 3,353 management plans were prepared for 211,110 acres.

Where practical, the landowner is referred to consulting or industrial foresters to assist in carrying out the management recommendations. This year 551 cases were referred to consulting foresters with 286 cases referred to industrial foresters.

Commission foresters provide timber marking services to landowners on a limited basis. This year 50 tracts were marked, with 974,724 board feet of sawtimber and 2,446 cords of pulpwood designated for cutting.

Prescribed burning plans are also prepared for landowners who require this practice. Fire as a forest management tool is recommended for control of weed trees, seedbed preparation, site preparation in conjunction with mechanical and chemical methods, control of brown spot disease in longleaf pines, reduction of hazardous fuels, and improving wildlife habitat.

COUNTY	TOTAL WOODLAND					EXAMINATIONS 1941-JUNE, 1986
	WOODLAND EXAMS	ACRES EXAMINED	TRACTS MARKED	VOLUME----- BOARD FT.	MARKED CORDS	
Abbeville	72	3634				1527
Aiken	93	8099				2884
Allendale	56	5081	1	2623		722
Anderson	96	5854	5		226	2850
Bamberg	81	4552	1	49721	3	1192
Barnwell	82	4478				1112
Beaufort	10	2153				477
Berkeley	42	6309				739
Calhoun	83	6427				1561
Charleston	18	1462				603
Cherokee	43	1923	1		31	1230
Chester	46	2781				1231
Chesterfield	109	3782				2515
Clarendon	43	3198				1392
Colleton	75	7654				2429
Darlington	38	2488	1	25306	5	1839
Dillion	54	2409				1458
Dorchester	39	3080				815
Edgefield	32	1964				868
Fairfield	99	7689				1606
Florence	94	4392	5	84361	147	2743
Georgetown	55	6001				606
Greenville	64	3705	2	127304		1715
Greenwood	60	5396				1815
Hampton	74	5382				1674
Horry	96	6937	3	97126	69	2253
Jasper	33	1457				634
Kershaw	137	8594	1	11389	36	1884
Lancaster	107	4482	2		39	1837
Laurens	92	4883	1		38	1763
Lee	92	7365	1	24772	8	1161
Lexington	67	2729	6	137199	188	2184
Marion	22	1631				755
Marlboro	38	2473				1102
McCormick	57	4526	1		105	1312
Newberry	138	6417	1		192	1899
Oconee	50	2680	1	81231		1998
Orangeburg	205	8944	3	2879	53	3500
Pickens	52	2261	4	89069	533	1834
Richland	152	6544	2	16744	32	2689
Saluda	64	3979				1443
Spartanburg	40	2924	2		186	1719
Sumter	98	6907	1	225000		1825
Union	36	2882	1		197	837
Williamsburg	129	8169	1		24	2242
York	90	4433	3		334	2375
TOTALS	3353	211110	50	974724	2446	74849

Forest Renewal Program - Funded Applications

	# Landowners	Acres	C-S Dollars
Site Preparation and Planting	123	6,640	\$556,095
Natural Regeneration- Pine	1	65	2,535
Natural Regeneration- Hardwood	2	99	3,861
Timber Stand Improvement	<u>6</u>	<u>234</u>	<u>7,254</u>
TOTALS	132	7,038	\$569,745

Tornado Reforestation Program (TRP)

Sixteen landowners participated in replanting pine seedlings planted on woodland that were destroyed by the 1974 tornado. This replanting was done on 1,669 acres with a total reimbursement of \$33,616 to the landowners. Reimbursement was at the rate of \$10/acre for site preparation and \$14.70/acre for seedlings.

The 1986 legislature provided for the carry over of \$25,000 of the 1984 tornado funds for re-establishment of tornado area planted stands killed by the 1986 summer drought.

Federal Programs

Forestry Incentive Program (FIP)
Agricultural Conservation Program (ACP)
Conservation Reserve Program (CRP)

These cost share programs are administered by the U. S. Department of Agricultural Stabilization and Conservation Service (ASCS). The Forestry Commission provides technical forestry assistance to landowners and approves qualifying acreage.

Since 1974 \$12,138,940 have been allocated to South Carolina landowners under FIP.

Agricultural Conservation Program (ACP) funds are also available for landowners.

Conservation Reserve Program (CRP)

The Conservation Reserve Program, authorized under the 1985 Farm Bill, is a voluntary program to take highly erodible cropland out of production. Participants will receive annual payments for ten years and one half the initial cost to establish a conservation practice which includes trees as one option. The program began with crop year 1986 and will continue through crop year 1990. The first signup was held in March and a second in June with a third to occur in August.

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Results From Conservation Reserve Signups

	<u>Total # Contract</u>	<u>Acres Trees</u>	<u>% of Total</u>
1st Signup	238	8,177	79.0
2nd Signup	<u>380</u>	<u>14,970</u>	81.0
TOTAL	618	23,147	

Twenty-nine acres were planted under CRP this year.

Reforestation and Management Cost-Share Programs Performance Completed

Practice	Number of Landowners			Acres			Cost Share Payments		
	FIP	ACP	FRP	FIP	ACP	FRP	FIP	ACP	FRP
Bare Land Plant	133	250	1	4852	6200	6	111440	135953	132
Re-plant	8	28	0	162	483	0	4474	8782	0
Site Preparation & Planting	302	232	62	10645	4817	4940	839357	371248	404700
T5I-Pine release	7	3	3	190	101	5902	6448	3131	
Chainsaw Clearing & Burn	2	0	0	25	0	0	1050	0	0
Natural Pine Regeneration	3	3	0	0	12	0	4865	276	0
Natural Hardwood Regeneration	1	0	2	151	0	99	1950	0	3861
Prescribed Burn	0	1	0	0	18	0	0	36	0
Total	456	517	68	16025	11720	5146	969038	522743	411824

TOTAL: LANDOWNERS.....1041

ACRES.....32,941

C/S PAYMENTS.....\$1,903,605

Forest Services

Through this program the Commission provides landowners forestry services to assist in afforestation, reforestation, and to maximize production from their woodland. For these services the landowner is charged the cost of performing the service.

The following services were available to landowners during the year:

- * Firebreak Plowing--performed by Forestry Commission employees using agency equipment for \$30 per hour.
- * Prescribed Burning--performed by Forestry Commission employees using agency equipment for \$3 per acre.
- * Prescribed Burning Standby--an agency unit and employee on standby at burning site while landowner performs burning under an approved plan for \$10 per hour.
- * Equipment Rental Program--agency owned tree planter bedding plows, drum chopper, and disc harrow made available to private landowners for use in reforestation at rates from \$3 to \$15 per acre.

Forest Services Accomplishments

<u>Service</u>	<u># Tracts</u>	<u>Miles-Acres</u>	<u>Receipts</u>
Firebreak Plowing	847	1,649 mi	\$ 78,815
Prescribed Burning	214	20,355 ac	62,157
Prescribed Burning Standby	70	11,311 ac	6,604
Equipment Rental	96	2,991 ac	<u>19,865</u>
TOTAL DOLLARS			\$167,441

Utilization And Marketing

Pine Sawtimber and Pulpwood Prices

Pine sawtimber began the year with prices and demand lower. During mid-year, prices increased somewhat but fell toward year end. Concern was expressed by landowners and companies due to Canadian imports and the future of Capital Gains tax treatments. Dry weather throughout the period led to a plentiful supply of logs.

PINE SAWTIMBER & PULPWOOD PRICES FOR SOUTH CAROLINA*

Fiscal Year	Weighted Average Price Per Thousand Board Feet Scribner Scale	Weighted Average Price Per Standard Cord
1981-82	\$138.80	\$15.18
1982-83	141.51	16.03
1983-84	133.95	15.71
1984-85	120.82	15.33
1985-86	131.95	11.16

*Sales of timber marked by Commission Foresters on private property.

Sixth Forest Survey of South Carolina

Detailed surveys to determine the condition of South Carolina's timber resources were made in 1936, 1947, 1958, 1968, and 1978. These surveys are conducted by the Forest Inventory and Analysis (FI&A) Section, Southeastern Forest Experiment Station, Asheville, N.C., a research unit of the U. S. Forest Service.

FI&A field crews began the 6th survey of South Carolina on November 12, 1985. By April 4, 1986 Survey Unit #3 of the Piedmont had been completed. The end of the fiscal year found 95% of Survey Unit #2 Northern Coastal Plain completed. Survey Unit #1 the Southern Coastal Plain and the remains of Unit #2 should be completed by early Fall of 1986.

Industry Assistance

The Forestry Commission continued to provide direct assistance to the wood using industries. Assistance was in the areas of sawmill improvement, felling and bucking, improved drying techniques, and wood energy.

Exports and Marketing

A marketing and export position was integrated into the Forest Management Section. Responsibilities include assisting anyone interested in exporting forest products from South Carolina, attracting potential secondary wood utilizing industries into the state as well as helping those already in the state to diversify their wood products, thereby helping the overall state economy. Marketing information concerning the wood industry is also collected and disseminated to various agencies and interested individuals.

Miscellaneous Assistance

Commission personnel handled 162 miscellaneous utilization, marketing, and wood energy requests during the year.

Ninety Six District Resource Conservation and Development Project

The Ninety Six Resource Conservation and Development (RC&D) District consists of Abbeville, Edgefield, Greenwood, Laurens, McCormick, and Saluda Counties. This Commission was initiated and sponsored by private citizens, city and county governments, and Soil and Water Conservation Districts from the six county district. Federal, state and local governments, industry representatives, and others work together on proposals that the local citizens consider necessary to develop a better way of life for the people in the area by conserving and developing the human and natural resources of the region.

The primary objective of the RC&D Forestry Project is to assist landowners, local units of government, and all other agencies by providing guidance in land use planning, promoting the multiple use of the forest, and showing ways to increase production, provide more employment opportunities, and protect the forest from fire and erosion through control measures.

The Ninety Six RC&D Project was very active again this year. Following is a list of projects completed or still being worked on:

- Woodland Clinic
- Communications Media
- Talks
- Prescribed Burning
- Miscellaneous Assistance
- County Forestry Association Assistance
- McCormick Correctional Institute-Wood Energy Project
- Critical Area Treatment
- Forestry Practices Tour
- Site Preparation Demonstration Area - Edgefield County
- Environmental Education
- Prescribed Burning Analysis
- U.S.D.A. Forest Service Atmospheric Degradation Survey
- Shitake Mushroom Project
- Conservation Reserve Program
- Summer Informational Programs for Vacationing Students
- Training

Watersheds

A program to help control water runoff on the small watersheds and protect bottomlands along the smaller streams from overflow was initiated some years ago through Public Law 566. Forestry Commission personnel provide technical assistance as needed on active watersheds. This assistance is provided under an agreement with the U. S. Forest Service.

Christmas Tree Survey

The Forestry Commission produces about two million Christmas tree seedlings annually that are available to Christmas tree growers.

An annual Christmas tree survey was initiated to obtain information on source of trees, markets, and trends of sales. The 1985 survey indicated that 62% of the Christmas trees sold in South Carolina were imported. A total of 153,865 trees were sold with only 42,010 of these grown in South Carolina.

The goal of growers and cooperating agencies is to promote South Carolina grown trees to obtain a larger share of the local market for South Carolina growers as well as possible export opportunities. Promotion is a joint effort of the Forestry Commission, Clemson Extension Service, S. C. Christmas Tree Growers Association, and the S. C. Department of Agriculture.

Forest Fire Protection Section

The South Carolina Forestry Commission is charged by state law with the responsibility of protecting all state and privately owned woodland from wildfire. At present, there are 12,031,090 acres of woodland under Forestry Commission protection. The U.S. Forest Service protects 548,724 acres of federal owned forestland and another 280,101 acres of woodland is owned and protected by still other federal agencies.

A formal agreement between the South Carolina Forestry Commission and the U. S. Forest Service provides for mutual aid in regard to fire detection and suppression along national forest boundaries.

Southeastern States Forest Fire Compact Commission

The 1954 General Assembly passed legislation enabling South Carolina to join with nine (9) other southeastern states to form a Forest Fire Compact Commission. Other states belonging to the commission are: Alabama, Georgia, Florida, Kentucky, Mississippi, North Carolina, Tennessee, Virginia, and West Virginia. The membership of each local state Commission is composed of a Compact Administrator (the State Forester), and a four-member Advisory Committee. The Compact Administrator and Advisory Committee for South Carolina are: Leonard A. Kilian, Jr., State Forester; Representative Marion P. Carnell, Ware Shoals; Mr. Archer Smith, Eastover; Senator William Doar, Georgetown; and Mr. Laverne Fenters, Garden City.

The thirty-second annual meeting of the Southeastern States Forest Fire Compact Commission (SSFFCC) was held on May 19, 1986 at Lafayette, Louisiana. Committee reports and activities during the year were discussed. Directives for the coming year were given to several working committees.

Emergency Preparedness

The South Carolina Forestry Commission maintains contact with the South Carolina Emergency Preparedness Agency and cooperates closely with them on matters concerning all emergencies and natural disasters.

Rural Fire Protection

Fire Protection - Title IV

The Rural Development Act of 1972, Title IV (Public Law 92-419), as amended, authorized the Secretary of Agriculture to develop a Rural Community Fire Protection Program. This program applies to rural communities throughout the country and is established to provide

financial and technical assistance for organizing, training, and equipping local fire fighting forces in communities under 10,000 population. Qualifying fire departments have been able to apply for funds under this program on a 50/50 matching basis. Funds may be utilized for equipment such as fire hose, protective clothing, communications equipment, and breathing apparatus. Funding for the 1986 fiscal year was set at \$44,600 and provided assistance to 66 departments.

Excess Federal Equipment

Excess federal equipment, loaned to the Forestry Commission by the U. S. Forest Service, is provided to qualifying rural fire departments for conversion to useful pieces of fire fighting equipment. The department receiving this equipment agrees to paint, maintain, and insure it and to respond to calls by the Forestry Commission. All equipment is returned to the Forestry Commission when no longer needed by the department.

Since the Cooperative Rural Fire Program began in January of 1976, 351 vehicles, tanks and miscellaneous equipment have been loaned to 226 rural fire departments throughout the state. At present 164 departments have in use 258 pieces of excess equipment. During fiscal year 1986, 33 pieces of equipment were issued to qualifying fire departments.

Weather

Fire Weather & Smoke Management Forecast

Regular and special fire weather and smoke management forecasts are available to the Forestry Commission, other agencies, and individuals through the National Weather Service.

Throughout the fire season, fire weather and smoke management forecasts are received twice daily by the Forestry Commission and relayed to all field offices and fire towers as well as other forestry interests. Special forecasts are available upon request for areas with large fires and during periods of extreme fire danger. During the summer months, when the danger of wildfire lessens, only the smoke management forecasts are given twice daily.

Weather Stations

A fire weather station is located in each district. The information from these stations is used in the National Fire Danger Rating System. This information is furnished daily to all fire control personnel. These weather stations also provide special information for the Fire Weather Forecaster.

Precipitation

Precipitation in South Carolina during 1985-86 averaged 43.32 inches as recorded by NOAA and the South Carolina State Climatology Office. This was 5.00 inches below the State's annual average of 48.32 inches.

Average Precipitation by Months

Month	Rainfall (Inches)	Normal (Inches)	Departure from Normal (Inches)
July 1985	8.83	5.90	+2.93
August 1985	6.69	5.18	+1.51
September 1985	1.41	4.37	-2.96
October 1985	5.86	2.88	+2.98
November 1985	7.75	2.65	+5.10
December 1985	1.18	3.49	-2.31
January 1986	1.40	3.53	-2.13
February 1986	2.36	3.78	-1.42
March 1986	2.84	4.84	-2.00
April 1986	0.76	3.56	-2.80
May 1986	2.80	3.55	-0.75
June 1986	<u>1.44</u>	<u>4.59</u>	<u>-3.15</u>
Total	43.32	48.32	-5.00

Five-year Summary of Precipitation

Fiscal Year	Rainfall (Inches)	Departure from Normal (Inches)
1981-82.....	56.74	+8.42
1982-83.....	51.69	+3.37
1983-84.....	51.70	+3.38
1984-85.....	38.47	-9.85
1985-86.....	43.32	-5.00
Average.....	48.38	+0.06

Readiness Plan

Initiated in the fall of 1982, the Commission's Readiness Plan System considers the influence of weather and fuel conditions on fire behavior (NFDRS indices), the chance of a fire starting, and the capability of the Fire Control Organization at any given time. Readiness plans give guidance in work planning and fire control activities. This allows the Commission to perform all of its many functions while at the same time meet its fire control responsibilities. Readiness Plans are on a scale of 1-7 with 1 being the lowest state of readiness and 7 the highest.

Readiness Days 1985-86

Number of Readiness 1 Days --	76
Number of Readiness 2 Days --	156
Number of Readiness 3 Days --	72
Number of Readiness 4 Days --	5
Number of Readiness 5 Days --	10
Number of Readiness 6 Days --	0
Number of Readiness 7 Days --	0

Smoke Management

In the spring of 1980, Voluntary Smoke Management Guidelines for Forestry Prescribed Burning Operations were adopted. This statewide program was developed by a committee of the S. C. Forestry Association in cooperation with the S. C. Forestry Commission.

The objective of the program is to minimize particulate concentrations of smoke in smoke sensitive areas resulting from forestry prescribed burning operations by defining volumes of vegetative debris that may be burned and those days on which burning is permissible.

During this sixth year of the program 1,961 prescribed burns on 282,452 acres were carried out under the Voluntary Smoke Management Guidelines.

Legal Fires

Legal fires are forest fires which are authorized by the landowner, started by him or his authorized agent and burn entirely upon his land. Individual landowners reported 4,661 fires that burned an estimated 463,578 acres for various purposes during 1985-86.

SUMMARY OF LEGAL FIRES

District	Hazard Reduction Hardwood Control		Wildlife Improvement		Grazing		Site Preparation		Total	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Camden	200	30,557	53	16,767	-	-	83	5,862	336	53,186
Florence	332	26,322	-	-	-	-	80	3,734	412	30,056
Kingstree	823	94,508	154	40,744	255	2,198	129	8,892	1,361	146,372
Newberry	112	14,025	24	2,804	-	-	12	335	148	17,164
Orangeburg	384	34,232	7	610	-	-	137	8,291	528	43,133
spartanburg	18	1,979	9	1,290	-	-	94	6,542	121	9,811
Walterboro	1,047	119,353	237	22,720	248	7,858	223	13,945	1,755	163,856
TOTAL	2,916	320,956	484	84,965	503	10,056	758	47,601	4,661	463,578

Law Enforcement

Law Enforcement Officers

The Forestry Commission has 78 Forest Law Enforcement Officers. They are commissioned by the Forestry Commission under statute authority of the 1982 General Assembly. A Forest Law Enforcement Officer has statewide jurisdiction for the enforcement of forestry laws of the state and the duly enacted regulations of the Commission. All Forest Law Enforcement Officers are trained by the Criminal Justice Academy prior to being commissioned and in-service training is given annually to keep officers up-to-date on changes that occur. In carrying out its law enforcement responsibilities, the Forestry Commission works closely with other state and local law enforcement agencies.

LAW ENFORCEMENT SUMMARY 1985-86

	Camden	Florence	Kingstree	Newberry	Orangeburg	Spartanburg	Walterboro	Total
PART A. NO. OF VIOLATIONS								
1. Willful and Malicious	7	-	-	9	27	70	4	117
2. Intentional	271	487	1,107	67	516	87	792	3,327
3. Careless and Negligent	358	243	205	245	324	297	175	1,847
4. Other Violations	1	-	-	-	1	-	-	-
5. Total Violations (1-4)	637	730	1,312	321	868	454	971	5,293
6. Notification Violation	34	5	4	7	53	1	29	133
7. Total All Violations (5&6)	671	735	1,316	328	921	455	1,000	5,426
8. No Fire Violations	169	347	44	289	294	225	84	1,452
PART B. NO. OF PROSECUTIONS								
1. Willful and Malicious	-	-	-	-	-	1	2	3
2. Intentional	-	-	-	-	-	-	-	-
3. Careless & Negligent	5	6	2	1	4	8	9	35
4. Notification Law	7	1	1	2	4	2	6	23
5. Other Violations	1	-	0	-	-	-	-	1
6. Total	13	7	3	3	8	11	17	62
PART C. NO. OF CONVICTIONS								
1. Willful and Malicious	-	-	-	-	-	1	2	3
2. Intentional	-	-	-	-	-	-	-	-
3. Careless & Negligent	5	6	2	1	4	8	9	35
4. Notification Law	7	1	1	2	4	2	5	22
5. Other Violations	1	-	-	-	-	0	-	1
6. Total	13	7	3	3	8	11	16	61

Burning Notification Law

Enacted in 1969, the statewide Burning Notification Law requires that a representative of the Forestry Commission be notified before a fire is started in any woodlands, brushlands, grasslands, ditchbanks, or hedgerows or in any debris, leaves or other flammable material adjacent thereto. The Law also requires that a person clear around the area to be burned, have equipment and personnel on hand to contain it and carefully supervise the burn. The State Forester may direct that fires covered under the Notification Law not be started when deemed necessary in the interest of public safety.

BURNING NOTIFICATION SUMMARY

County	Number Notifications Received	Number Fires Escaped	#Number Technical Violations
Abbeville	772	3	0
Aiken	6,669	13	0
Allendale	617	8	2
Anderson	654	0	1
Bamberg	680	8	1
Barnwell	1,857	21	2
Beaufort	2,011	8	24
Berkeley	1,966	2	1
Calhoun	424	11	8
Charleston	2,551	8	10
Cherokee	612	1	32
Chester	404	4	0
Chesterfield	1,674	7	6
Clarendon	1,816	21	2
Colleton	4,660	29	11
Darlington	325	3	0
Dillon	449	5	0
Dorchester	1,102	8	0
Edgefield	376	0	0
Fairfield	1,823	21	1
Florence	992	0	0
Georgetown	2,349	14	1
Greenville	3,397	8	0
Greenwood	1,609	2	2
Hampton	1,759	3	27
Horry	1,238	0	1
Jasper	875	8	9
Kershaw	2,308	1	0
Lancaster	308	0	27
Laurens	592	0	1
Lee	301	7	54
Lexington	6,502	12	2
McCormick	98	3	0
Marion	661	2	0
Marlboro	743	3	0
Newberry	840	3	0
Oconee	1,102	0	0
Orangeburg	1,190	13	3
Pickens	1,122	8	0
Richland	1,291	1	0
Saluda	327	0	0
Spartanburg	1,261	0	0
Sumter	1,900	0	185
Union	92	0	0
Williamsburg	1,358	11	0
York	2,688	1	0
Totals	68,345	278	413

*Violation of fire law where no wildfire occurred

Fire Detection

Fire Towers

Basic forest fire detection is accomplished by an interlocking network of 132 forest fire lookout towers. These towers are strategically located so each tower's normal range of visibility overlaps with adjoining towers. With overlapping coverage, smokes can be observed, located and checked out.

Aerial Detection

Forestry Commission fixed wing aircraft are used to separate legal burning from wildfires, to help ground crews find the best path to a fire, to warn of danger, aid in fire suppression, and other uses.

During 1985-86 the Commission operated eight federal excess property fixed winged aircraft which were flown a total of 1,076 hours. Contract aircraft were utilized for 229 hours during the same period. Total fixed wing aircraft use for the year was 1,306 hours.

SUMMARY OF DETECTION AIRCRAFT USE - HOURS

Month	Camden District	Florence District	Kingstree District	Newberry District	Orangeburg District	Spartanburg District	Walterboro District	Total
July	6.6	7.1	0.0	0.0	3.0	1	5.6	23.3
August	4.2	1.2	0.0	0.0	0.0	14.5	2.2	22.1
September	9.4	4.1	9.4	0.0	1.5	0.7	3.8	28.9
October	0.0	3.4	3.0	0.0	2.0	0.8	2.0	11.2
November	2.1	0.0	3.0	0.0	4.1	1	3.6	13.8
December	10.5	4.0	3.0	0.0	7.1	14.6	2.2	41.4
January	10.2	22.8	5.4	25.9	3.7	2.5	0.0	70.5
		#3.0						#3.0
February	5.4	20.3	10.5	6.2	10.9	3.1	5.8	62.2
March	47.7	62.7	71.2	47.2	0.0	39	33.1	300.9
			#13.2		#28.5	#1.0		#42.7
April	57.0	67.2	104.4	27.2	24.2	0.2	69.9	350.1
		#68.8	#15.3			#50.2		#134.3
May	10.0	33.0	30.0	4.5	21.5	0	19.4	118.4
	#5.3	#25.6			#15.0			#45.9
June	16.5	3.8	3.0	5.9	3.1	0	1.3	33.6
			#3.5					#3.5
TOTAL (SCFC)	179.6	229.6	242.9	116.9	81.1	77.4	148.9	1,076.4
TOTAL (Contract)	#5.3	#97.4	#32.0	0.0	#43.5	#51.2	0.0	#229.4
GRAND TOTAL	184.9	327.0	274.9	116.9	124.6	128.6	148.9	1,305.8

Contract Aircraft

Aerial Retardant Delivery

Air Tanker Program

The primary purpose of air tankers is to aid ground crews in the initial attack of wildfires. They are also used in areas of difficult terrain such as coastal swamps/bays and steep mountain slopes where the use of ground equipment is limited. Air tankers cannot replace ground equipment, but because of their capability to respond wherever needed quickly, they can keep a fire from spreading until ground crews arrive to affect complete control.

The Forestry Commission has used air tankers for retardant delivery on wildfires for the past eight years. In these years, tankers were contracted for the time of peak fire occurrence in February, March and April.

Two aerial tankers were used for the spring 86 fireseason. Tanker 101, a Lockheed PV-2, was stationed at Walterboro February 17 through April 8, 1986. Tanker 39, a Lockheed PV-2, was stationed at Georgetown February 21 through April 6, 1986. Satellite bases were set up at Florence, Camden, and Barnwell. A mobile base was located at Spartanburg. These two tankers flew 9 hours and 26 minutes and dropped 20,000 gallons of retardant in 20 drops on 19 separate fires.

Helicopter Delivery Program- S. C. Army National Guard

In September 1982 the Forestry Commission and the South Carolina Army National Guard completed a week of training in the use of helicopters for aerial retardant delivery. Training was given to the Guard in fire behavior, fire tactics, communications, and retardant drops. Using a 250 gallon bucket furnished by the Forestry Commission, practice runs were made on fires set for the training exercise. Training was conducted in subsequent years to keep pilots proficient in the use of the aerial bucket.

To activate this program for wildfire control, the State Forester must request such assistance from the Governor through the Office of Emergency Preparedness.

During April 1985 the program was activated for the first time for forest fire use. Between April 8 and April 11, 1985, two South Carolina Army National Guard Helicopters made 71 water drops on 5 separate fires with excellent results.

The National Guard helicopters were not activated during the 1985-86 fire season.

Helicopter Delivery Program- S. C. Forestry Commission

During the 1986 fire season the Forestry Commission used, for the first time in an aerial retardant delivery role, one of two helicopters it acquired through the Federal Excess Property program.

A total of 5 different wildfires were fought with fire retardants delivered by the Commission's helicopter. Total drops numbered 77.

Forest Fire Suppression

The 1985-86 fire season can be summed up in one word "late". It wasn't until April 1986 that fire occurrence and acres burned reached a level that could even be described as average. From late April on, through, the picture changed dramatically, fire activity increased daily as drought conditions grew worse. The number of fires in June (410) set a record for the month.

For the year as a whole, 6,877 fires burned 38,032 acres. Over 300 fires occurred each in Berkeley, Clarendon, Colleton, Lexington, Orangeburg and Williamsburg Counties. Colleton county lost 5,407 acres which was over double that of any other county.

Fifty-two (52) percent of all fires were caused by incendiaryists. Debris burning was a distant second with twenty-three (23) percent of all fires originating from such activity. Due to the drought, over two (2) percent of the year's fires were caused by lightning (this is over double the norm).

The most destructive fire of the year occurred on May 3rd in Colleton County. It was around 1:00 a.m. on the 3rd when an incendiaryist(s) set 8 fires in a large block of woodland a few miles northwest of Walterboro. By the time the fire was contained at 6:00 p.m. that afternoon, some 3,500 acres of valuable timber and young pine had been destroyed. Total timber losses were appraised at 2 million dollars. Some 100 men using 50 pieces of firefighting equipment fought the blaze.

In summary, 1985-86's fire season will be remembered for the late season flurry of activity and the "big" fire in Colleton County. Otherwise, it was about average.

COUNTY FIRE PERSONNEL & VOLUNTEERS

Forestry Commission Personnel

	Tower			Volunteer	
	Rangers	Wardens	Operators	Totals	Personnel
Abbeville	1	3	1	5	170
Aiken	1	5	5	11	318
Allendale	1	3	3	7	81
Anderson	1	3	2	6	301
Bamberg	1	3	2	6	387
Barnwell	1	3	2	6	263
Beaufort	1	5	3	9	54
Berkeley	1	7	4	12	167
Calhoun	1	3	2	6	233
Charleston	1	6	3	10	61
Cherokee	1	2	1	4	789
Chester	1	3	1	5	96
Chesterfield	1	4	4	9	217
Clarendon	1	5	3	9	522
Colleton	1	7	5	13	77
Darlington	1	3	3	7	191
Dillon	1	3	2	6	68
Dorchester	1	6	3	10	38
Edgefield	1	3	1	5	56
Fairfield	1	4	3	8	454
Florence	1	5	4	10	392
Georgetown	1	5	4	10	235
Greenville	1	4	4	9	170
Greenwood	1	3	2	6	148
Hampton	1	4	3	8	123
Horry	1	8	4	13	370
Jasper	1	6	2	9	59
Kershaw	1	6	6	13	60
Lancaster	1	4	2	7	96
Laurens	1	3	2	6	187
Lee	1	3	2	6	25
Lexington	1	6	5	12	134
Marion	1	5	3	9	260
Marlboro	1	4	3	8	80
McCormick	1	2	2	5	34
Newberry	1	3	2	6	184
Oconee	1	2	2	5	20
Orangeburg	1	7	5	13	527
Pickens	1	4	4	9	65
Richland	1	6	4	11	195
Saluda	1	2	1	4	49
Spartanburg	1	4	2	7	150
Sumter	1	4	3	8	147
Union	1	3	1	5	100
Williamsburg	1	8	4	13	273
York	1	4	3	8	340
Total	46	196	132	374	8966

FOREST AND NON-FOREST LAND FIRES 1985-86

County	FOREST LAND				NON-FOREST LAND			TOTAL	
	Forest Area Protected	Number of Fires	Area Burned	% Area Burned	Average Ac. per Fire	Number of Fires	Area Burned	Number of Fires	Area Burned
Abbeville	205619	31	54	0.02	1.7	14	34.4	45	88.4
Aiken	433387	250	795.2	0.18	3.2	35	154.8	285	950
Allendale	156223	40	117.5	0.07	2.9	4	2.1	44	119.6
Anderson	227594	93	283.7	0.12	3.1	22	117	115	400.7
Bamberg	149603	89	496.1	0.33	5.6	14	42.5	103	538.6
Barnwell	123617	45	360.8	0.29	8	15	100.5	60	461.3
Beaufort	153166	55	144.3	0.09	2.6	43	88.7	98	233
Berkeley	391789	346	1790.4	0.45	5.2	15	248.1	361	2038.5
Calhoun	134105	50	339.5	0.25	6.8	20	24.9	70	364.4
Charleston	262798	115	1676.1	0.63	14.6	11	36.5	126	1712.6
Cherokee	162976	73	356.8	0.21	4.9	66	67.7	139	424.5
Chester	283949	34	299.5	0.1	8.8	16	22.7	50	322.2
Chesterfield	355398	111	794.9	0.22	7.2	47	134.5	158	929.4
Clarendon	217816	312	1832.1	0.84	5.9	57	526.9	369	2359
Colleton	479853	327	5407.4	1.12	16.5	54	115.3	381	5522.7
Darlington	171141	170	585	0.34	3.4	41	128.2	211	713.2
Dillon	145574	87	327.9	0.22	3.8	26	26.8	113	354.7
Dorchester	273472	156	783.7	0.28	4.9	43	64.2	202	847.9
Edgefield	208660	40	197.9	0.09	4.9	3	5.7	43	203.6
Fairfield	378650	79	121.5	0.03	1.5	33	17.6	112	139.1
Florence	291159	216	1182.4	0.4	5.5	32	215.3	248	1397.7
Georgetown	381198	222	904.9	0.23	4.1	12	84.6	234	989.5
Greenville	315925	64	184.6	0.05	2.9	10	20.2	74	204.8
Greenwood	201795	111	273.5	0.13	2.5	23	56.3	134	329.8
Hampton	247779	73	440	0.17	6	16	15.8	89	455.8
Horry	496547	275	1887.8	0.38	6.9	1	4	276	1891.8
Jasper	317032	159	1107.5	0.34	7	29	78.9	188	1186.4
Kershaw	403461	123	395	0.09	3.2	18	91	141	486
Lancaster	242709	39	137.8	0.05	3.5	0	0	39	137.8
Laurens	294516	54	237.7	0.08	4.4	40	95	94	332.7
Lee	122845	88	2161.7	1.76	24.6	3	112.5	91	2274.2
Lexington	284158	333	578.6	0.2	1.7	2	4.1	335	582.7
Marion	217136	86	846.7	0.39	9.8	6	15.8	92	862.5
Marlboro	175333	119	695.9	0.39	5.8	23	132.8	142	828.7
McCormick	134484	48	99.1	0.07	2.1	13	14.4	61	113.5
Newberry	262111	53	379.6	0.14	7.2	5	6	58	385.6
Oconee	215041	36	213.8	0.09	5.9	9	39.1	45	252.9
Orangeburg	376278	265	1492.5	0.39	5.6	53	224.1	318	1716.6
Pickens	228839	82	125.2	0.05	1.5	13	48.3	95	173.5
Richland	288854	205	958.5	0.33	4.7	12	37.5	217	996
Saluda	194122	17	22.6	0.01	1.3	3	1.6	20	24.2
Spartanburg	292516	56	200	0.06	3.6	23	143.5	79	343.5
Suater	240153	156	1156.9	0.48	7.4	37	214.6	193	1371.5
Union	220583	51	155	0.07	3	6	14.5	57	169.5
Williamsburg	392392	390	1591.1	0.4	4.1	6	2.1	396	1593.2
York	278674	62	181	0.06	2.9	14	27.1	76	208.1
TOTAL	12031090	5889	34373.7	0.28	5.8	988	3658.2	6877	38031.9

FOREST LAND FIRES BY COUNTY AND CAUSE 1985-86

County	LIGHTNING		CAMPFIRE		SMOKING		DEBRIS BURNING		INCENDIARY		EQUIPMENT USE		RAILROAD CHILDREN		MISCELLANEOUS		TOTAL			
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres		
Abbeville					5	3.1	11	26.4	7	6.4		0.5		2	9.7	6	7.9	31	54	
Aiken	19	86.5	3	19.4	7	3.8	49	144.6	130	465.8	13	48	3	0.3	17	18.1	9	8.7	250	795.2
Allendale	2	10			5	4.7	20	87.2	11	15.3	1	0.1				1	0.2	40	117.5	
Anderson	1	0.6	3	32	34	113.8	29	83.7	12	22.4	5	16		5	12.2	4	3	93	283.7	
Bamberg	4	336					31	81.1	47	76.7	1	0.1		3	1.7	3	0.5	89	496.1	
Barnwell	4	91.7			6	14.5	24	177.6	6	72	3	3.6		1	0.4	1	1	45	360.8	
Beaufort							22	61.6	28	74.2	3	7.7		1	0.3	1	0.5	55	144.3	
Berkeley	3	19	2	1.1	1	0.5	31	66	299	1642.1	5	45	1	0.2	1	0.5	3	16	346	1790.4
Calhoun					13	67.9	24	244.8	2	12.1	2	1.1	1	3			8	10.6	50	339.5
Charleston							8	1191	102	462.1			2	9			3	14	115	1676.1
Cherokee			2	3.6	7	13.1	4	77.1	43	234.4	3	4.7	6	10.2	6	11.7	2	2	73	356.8
Chester	1	30					10	38.3	16	137.6	1	15	6	78.1				0.5	34	299.5
Chesterfield	10	486.4	1	2.5	18	58.9	22	38.8	29	129.6	10	27.5	4	15.4	6	24.4	11	11.4	111	794.9
Clarendon							48	134	257	1686.9	5	7.1			1	3.1	1	1	312	1832.1
Colleton	4	26.1	6	37.1	23	150.8	33	152.3	251	5030.9	6	7	3	3.1			1	0.1	327	5407.4
Darlington	1	0.2	2	17	2	2	77	293.1	52	172.8	8	5.9	1	1	16	54.1	11	38.9	170	585
Dillion	1	6			11	49.6	19	136.3	40	85.5	5	21.9			8	3.2	3	25.4	87	327.9
Dorchester					1	0.5	35	107.2	119	644.7	2	0.8					2	30.5	159	783.7
Edgefield					14	136.6	13	29.1	5	4.7	3	8.6			3	0.9	2	18	40	197.9
Fairfield	2	11.1	2	6.5	2	39.6	20	27	9	4	5	5.8	2	9.4	9	2.9	10	15.2	79	121.5
Florence					2	13	50	113.7	150	1030.2			1	2	6	11.2	7	12.3	216	1182.4
Georgetown	6	277.6	1	0.1		13.5	52	152.7	148	463.4	8	7.2	1	1.5	4	2.1	2	0.3	222	904.9
Greenville	1	3	5	14.5	8	13.5	20	64.1	9	9.3	7	47.9			10	28.6	4	3.7	64	184.6
Greenwood	3	4.3	2	25	17	34.2	28	94.9	9	28.4	4	14.3	8	24.7	29	42.7	11	5	111	273.5
Hampton	5	87.8			2	6.9	22	227.6	38	115.7	4	0.5	2	1.5				73	440	
Horry	4	9.2	4	9.5	13	18.5	70	415	140	795.2	19	64.2			14	22.1	11	554.1	275	1887.8
Jasper	2	62			1	3	19	133.3	128	896.3	4	7.6	4	5.2	1	0.1		159	1107.5	
Kershaw	10	135.6	1	0.5	11	17.3	42	93.2	34	89.5	1	0.1	10	25	8	12.4	6	21.4	123	395
Lancaster					9	36.5	16	47.9	3	22					8	19.4	3	12	39	137.8
Laurens	2	13.2	1	21	14	55.6	10	9.1	6	40	5	11	6	44.2	4	7.5	6	36.1	54	237.7
Lee	1	3	1	225	1	0.5	36	299.8	44	1611.9	5	21.5						88	2161.7	
Lexington	3	108	1	6.5	19	75.6	95	106.5	121	124.6	26	73.7	3	0.6	44	38.4	21	44.7	333	578.6
Marion	3	229.4	1	2	7	353.7	26	171	35	78.7			1	0.1	2	3	11	8.8	86	846.7
Marlboro	6	78.1			29	112.8	30	86.5	38	394.7	4	12.1	1	2.5	7	7.1	4	2.1	119	695.9
McCormick	4	6.2			14	12.5	13	31.3	4	16	1	0.1	6	22.1	2	9.1	4	1.8	48	99.1
Newberry	1	25			5	12.1	16	263.6	11	57	5	8.9	4	1.5	5	3.1	6	8.4	53	379.6
Oconee	2	0.4	1	2	2	67.2	11	42.8	9	72.3	1	4	2	15.4	4	6.5	4	3.2	36	213.8
Orangeburg	7	12.4	1	1.3	17	49.7	77	202.5	137	1080.8	5	17.4	1	0.1	5	3	15	125.3	265	1492.5
Pickens	7	3.6	3	3.5	7	7.5	21	45.1	13	13.3	12	20.6	1	4	7	18.6	11	9	82	125.2
Richland	2	151.5	2	3	23	62.1	66	288.2	68	338.5	4	10.3	5	12.6	28	83.3	7	9	205	958.2
Saluda	1	0.4			5	6.1	4	12.1							1	0.1	6	3.9	17	22.6
Spartanburg	1	4			14	51	16	57.5	13	49	1	9.5	1	1	5	13	5	15	56	200
Suiter					3	6.3	15	180.5	101	809.8	1	1.5			2	2.4	34	156.4	156	1156.9
Union	4	1.7	1	3	6	18.5	12	7.3	15	86.5	3	4.5	3	20.5	5	9	2	4	51	155
Williamsburg	2	8.5			2	2.3	56	407.6	324	1166.8	4	5.2			1	0.4	1	0.3	390	1591.1
York	2	6.3	5	4.8	11	95.4	16	19.9	3	12.3	4	8.7	2	3.6	11	26.8	8	3.2	62	181
TOTAL	131	2334.8	51	440.9	409	1791.2	1369	6770.9	3066	20382.4	209	577.2	91	317.8	292	513.1	271	1245.4	5889	34373.7

	Class A		Class B		FOREST LAND Class C		FIRES BY COUNTY AND CLASS Class D		Class E		Class F		Class G		Total	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Abbeville	8	1.2	23	47.8	0	5.0	0	0 0	0	0 0	0	0 0	0	0 0	31	54.0
Aiken	63	9.0	164	341.3	23	444.9	0	0 0	0	0 0	0	0 0	0	0 0	250	795.2
Allendale	11	1.8	28	45.7	1	70.0	0	0 0	0	0 0	0	0 0	0	0 0	40	117.5
Anderson	2	0.3	85	179.4	6	104.0	0	0 0	0	0 0	0	0 0	0	0 0	93	283.7
Bamberg	21	2.8	65	121.3	2	47.0	0	0 1	325	0 0	0	0 0	0	0 0	89	496.1
Barnwell	4	0.8	34	74.7	6	185.3	1	100 0	0	0 0	0	0 0	0	0 0	45	360.8
Beaufort	6	0.8	47	111.5	2	32.0	0	0 0	0	0 0	0	0 0	0	0 0	55	144.3
Berkeley	21	2.9	281	619.5	42	843.0	2	325 0	0	0 0	0	0 0	0	0 0	346	1,790.4
Calhoun	14	2.2	29	70.3	6	142.0	1	125 0	0	0 0	0	0 0	0	0 0	50	339.5
Charleston	6	1.1	91	280.0	16	263.0	1	200 1	932	0 0	0	0 0	0	0 0	115	1,676.1
Cherokee	18	2.6	53	84.2	1	75.0	1	195 0	0	0 0	0	0 0	0	0 0	73	356.8
Chester	2	0.3	22	67.2	10	232.0	0	0 0	0	0 0	0	0 0	0	0 0	34	299.5
Chesterfield	26	4.1	75	196.1	9	188.7	0	0 1	406	0 0	0	0 0	0	0 0	111	794.9
Clarendon	52	5.3	225	583.8	33	636.0	2	275 0	332	0 0	0	0 0	0	0 0	312	1,832.1
Colleton	35	4.4	244	581.9	46	1,131.1	1	133 0	0	1 3,557	0	0 0	0	0 0	327	5,407.4
Darlington	30	4.9	123	246.0	17	334.1	0	0 0	0	0 0	0	0 0	0	0 0	170	585.0
Dillon	18	2.2	63	128.5	5	97.2	1	100 0	0	0 0	0	0 0	0	0 0	87	327.9
Dorchester	3	0.6	138	449.6	18	333.5	0	0 0	0	0 0	0	0 0	0	0 0	159	783.7
Edgefield	6	0.9	28	52.0	6	145.0	0	0 0	0	0 0	0	0 0	0	0 0	40	197.9
Fairfield	20	2.7	57	87.8	2	31.0	0	0 0	0	0 0	0	0 0	0	0 0	79	121.5
Florence	39	5.4	146	403.9	30	648.1	1	125 0	0	0 0	0	0 0	0	0 0	216	1,182.4
Georgetown	64	7.7	143	382.2	14	255.0	1	260 0	0	0 0	0	0 0	0	0 0	222	904.9
Greenville	7	1.1	53	100.5	4	83.0	0	0 0	0	0 0	0	0 0	0	0 0	64	184.6
Greenwood	28	4.1	75	129.4	8	140.0	0	0 0	0	0 0	0	0 0	0	0 0	111	273.5
Hampton	17	2.2	47	81.8	8	256.0	1	100 0	0	0 0	0	0 0	0	0 0	73	440.0
Horry	50	6.8	194	495.0	28	736.0	2	200 1	450	0 0	0	0 0	0	0 0	275	1,887.8
Jasper	27	4.3	97	230.2	35	873.0	0	0 0	0	0 0	0	0 0	0	0 0	159	1,107.5
Kershaw	43	7.5	72	148.5	8	239.0	0	0 0	0	0 0	0	0 0	0	0 0	123	395.0
Lancaster	4	0.8	31	81.0	4	56.0	0	0 0	0	0 0	0	0 0	0	0 0	39	137.8
Laurens	5	0.9	39	80.3	10	156.5	0	0 0	0	0 0	0	0 0	0	0 0	54	237.7
Lee	4	0.7	57	148.5	24	537.5	2	375 0	0	1 1100	0	0 0	0	0 0	88	2,161.7
Lexington	139	18.1	185	322.5	9	238.0	0	0 0	0	0 0	0	0 0	0	0 0	333	578.6
Marion	21	3.4	59	120.0	4	153.3	1	220 1	350	0 0	0	0 0	0	0 0	86	846.7
Marlboro	36	4.8	68	181.1	14	335.0	1	175 0	0	0 0	0	0 0	0	0 0	119	695.9
McCormick	16	1.9	30	57.7	2	39.5	0	0 0	0	0 0	0	0 0	0	0 0	48	99.1
Newberry	12	2.0	34	62.6	6	90.0	1	225 0	0	0 0	0	0 0	0	0 0	53	379.6
Oconee	4	0.5	27	73.3	5	140.0	0	0 0	0	0 0	0	0 0	0	0 0	36	213.8
Orangeburg	45	7.2	187	437.3	30	654.0	3	394 0	0	0 0	0	0 0	0	0 0	265	1,492.5
Pickens	21	2.8	60	112.4	1	10.0	0	0 0	0	0 0	0	0 0	0	0 0	82	125.2
Richland	19	3.0	169	396.5	15	309.0	2	250 0	0	0 0	0	0 0	0	0 0	205	958.5
Saluda	5	0.6	12	22.0	0	0.0	0	0 0	0	0 0	0	0 0	0	0 0	17	22.6
Spartanburg	0	0.0	53	159.0	3	41.0	0	0 0	0	0 0	0	0 0	0	0 0	56	200.0
Sueter	4	0.4	120	401.5	31	655.0	1	100 0	0	0 0	0	0 0	0	0 0	156	1,156.9
Union	2	0.4	44	70.6	5	84.0	0	0 0	0	0 0	0	0 0	0	0 0	51	155.0
Williamsburg	108	12.0	244	602.6	37	826.5	1	150 0	0	0 0	0	0 0	0	0 0	390	1,591.1
York	12	1.5	47	83.5	3	96.0	0	0 0	0	0 0	0	0 0	0	0 0	62	181.0
Total	1,098	151.0	4,168	9,752.5	589	12,991.2	27	4,027	5	2,795	2	4,657	0	0	5,889	34,373.7

Class A<.25Ac;Class B .26-9.9;Class C 10-99;Class D 100-299;Class E 300-999;Class F 1000-4999;Class G>5000

FOREST FIRES BY COUNTY AND MONTH 1985-86

	July		August		September		October		November		December		January		February		March		April		May		June		Total	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Abbeville	1	1.5	1	0.4	4	11.3					5	3	4	3.6	2	6.9	5	8.9	4	11.7	1	0.5	4	6.2	31	54
Aiken	13	25	2	1	19	29.1	11	6.5			17	49.5	12	22.8	12	20.5	73	293.7	34	172.5	31	114.1	26	60.5	250	795.2
Allendale	2	10			1	0.1							2	2.9	4	8.3	15	84	13	10	3	2.2			40	117.5
Anderson					3	16.2	4	18.2			4	15.5	10	37.7	3	13.6	27	88	24	54.9	9	23.2	9	16.4	93	283.7
Bamberg	3	333			5	26.5							11	10.9	19	33.4	29	66.5	12	17.7	8	7.8	2	0.3	89	496.1
Barnwell	1	90	1	0.5	2	10.5	1	6.4			2	0.4	2	0.7	7	16.9	15	167.5	7	56.7	5	9.7	2	1.5	45	360.8
Beaufort					2	2.1	1	0.3			1	3	4	11.9	3	6.2	15	56.5	19	35.6	7	26.6	3	2.1	55	144.3
Berkeley	4	15			4	14.2					3	11.5	25	34.7	45	213.6	109	762.8	98	565.3	51	128.8	7	39.5	346	1790.4
Calhoun	3	5.2	2	0.3	1	10							6	4.9	5	5.8	17	132.1	10	174.1	1	1	5	6.1	50	339.5
Charleston			1	2									6	26	6	34.5	33	1054	46	452.1	21	103.5	2	4	115	1676.1
Cherokee	1	1.5			1	3	2	4.2			6	8.3	22	14.8	6	8.2	10	13.3	18	290.9	3	2.6	4	10	73	356.8
Chester	2	7			1	3	2	7.1			1	0.3	3	11.3	4	119	3	12.6	16	108.2	1	1	1	30	34	299.5
Chesterfield	6	30.2	1	5.4	7	39.7	3	9			5	11.9	5	15.2	7	7.2	26	101.3	25	64	13	21.5	13	489.5	111	794.9
Clarendon	2	1.5			3	3	1	3	1	1	15	20.1	33	146.8	27	71.7	99	668.6	90	336.5	25	206.6	16	373.3	312	1832.1
Colleton	5	26.1	3	2.5	11	35.5	6	6.5	2	31	10	36.6	29	79.7	34	151.2	107	827.2	88	504.5	28	3679.7	10	26.9	327	5407.4
Darlington	2	0.5	2	7.4	6	31.5	3	1.3	1	2	5	4.7	15	49.9	18	18.3	21	134.6	57	187.7	17	41.2	29	105.9	170	585
Dillon	2	0.2			1	0.1	1	0.1			2	2.1	11	26.5	8	21.1	20	44.6	28	187.5	7	13	7	32.7	87	327.9
Dorchester	6	13.7			1	0.5					2	8.4	16	102.5	12	89.8	52	260	44	212.7	17	62.1	9	34	159	783.7
Edgefield	2	75.6	2	17	3	5.2					1	0.2	4	3.1	5	18.5	5	24.4	13	33.7	5	20.2			40	197.9
Fairfield	4	4.4	1	0.1	3	5.7	1	1.2			7	6.4	3	6.1	7	8.4	15	30.7	21	37	12	9.7	5	11.8	79	121.5
Florence	4	43			3	5.7	4	0.5			9	21.1	22	60	19	91.9	59	251.3	63	446.5	22	107.8	11	154.6	216	1182.4
Georgetown	10	295.8	2	5.5	1	0.2			1	0.1	11	22.3	15	29.5	19	61.2	73	251.9	55	164	30	63	5	11.4	222	904.9
Greenville	8				1	0.3	1	3	1	0.1	8	12	3	2.7	5	35.2	18	77.6	16	38.3	7	10.7	4	4.7	64	184.6
Greenwood	8	4.6	5	2.4	12	17.9	2	4.3			19	25.8	13	24.2	5	7.6	17	44.4	16	80.4	8	50.8	6	11.1	111	273.5
Hampton	5	43.6	3	1.5	4	1.4					1	5	5	2.7	10	18.9	25	247.6	15	33	4	6.3	1	80	73	440
Horry	6	64.6			7	11.8	7	9.2	1	0.1	5	12	25	59.4	15	76.4	82	571.4	90	756.1	33	324.4	4	2.4	275	1887.8
Jasper	2	7			5	4.9					3	35.2	18	73.4	17	56.6	45	286.1	43	380.3	21	209.5	5	54.5	159	1107.5
Kershaw	9	51.4			5	26.4	1	0.1	1	0.1	4	8	12	10.4	8	17.8	22	29.1	25	97.6	20	48.4	16	105.7	123	395
Lancaster	1	1			1	0.2	2	7			2	14	2	13	3	16	8	20.7	14	58.7	4	6	2	1.2	39	137.8
Laurens	1	1			1	3	1	2			3	2	6	12	3	20	13	69.2	13	75.2	9	45.3	4	8	54	237.7
Lee	3		1	1	1	2					1	1	5	12.1	10	29.5	39	1475.1	20	613	4	7.5	7	20.5	88	2161.7
Lexington	3	25.5	4	5.3	10	15.2	10	4.6	2	1.9	21	37.6	36	61.7	26	32.6	68	124.9	58	51.3	51	81.3	44	136.7	333	578.6
Marion	7	359.7			1	0.5	1	5	1	5	5	4.7	4	7.2	4	110.4	20	49.2	26	266.7	13	33.8	4	4.5	86	846.7
Marlboro	3	27.6			1	8	1	0.2			7	10.1	15	19.1	9	23.7	43	226.8	16	225.8	14	68.4	10	86.2	119	695.9
McCormick	2	0.3	3	0.7	7	8.8					2	0.8	1	1	7	36.4	16	35.6	7	15.1	1	0.1	2	0.3	48	99.1
Newberry	3	6.3			3	9	1	1			3	6.3	2	0.6	7	22	11	254	12	38.6	5	8.6	6	33.2	53	379.6
Oconee	1	4									2	10	6	75.4	2	4	7	16.2	14	91.9	1	10	3	2.3	36	213.8
Orangeburg	7	200.8	3	0.7	5	6.8	2	2.1			11	12.4	11	40.7	19	50.4	80	673.4	73	410.8	36	52.4	18	42	265	1492.5
Pickens					1	2.2	1	0.1					6	14.3	4	4	29	64.9	24	24.7	10	11.3	7	3.7	82	125.2
Richland	3	9	3	6	5	33.5	2	3	1	1	3	3.7	11	30.2	15	47.4	53	405.5	48	134.4	34	83.1	27	201.7	205	958.5
Saluda	1	0.4					1	0.1			1	0.1	3	2.1	2	2.2	3	10.1	4	4.2			2	3.4	17	22.6
Spartanburg					2	3					3	13	2	15.5	4	22	12	39	18	54.5	9	29	6	24	56	200
Sumter	4	17.8			1	2.5	4	6.2	1	3	4	16	7	27.2	9	33	52	483.9	49	430.7	19	100.6	6	36	156	1156.9
Union					4	3.7					4	12	6	36.8			12	37.2	11	40.9	6	18.7	8	5.7	51	155
Williamsburg	5	181.5	3	3.4	3	1.4	1	0.2	1	1	7	7.7	31	205.4	48	145.6	136	651.1	117	283.5	36	101.3	2	9	390	1591.1
York	6	17.3									3	5.5	4	78.9	2	2.7	15	24.3	15	37.5	9	5.2	8	9.6	62	181
Total	150	2002.6	43	63.1	162	415.6	78	117.4	14	46.3	228	480.2	488	1527.5	506	1840.6	1654	11251.8	1529	8367	671	5958.5	366	2303.1	5889	34373.7

FOREST LAND FIRES BY CAUSE - FIVE YEAR PERIOD - PERCENT

CAUSES	1981-82	1982-83	1983-84	1984-85	1985-86
Lightning	1.2	1.2	2.8	.8	2.2
Campfire	.9	.6	.7	.5	.9
Smoking	11.3	8.3	8.8	6.1	7.0
Debris Burning	24.3	24.5	24.2	20.9	23.2
Incendiary	45.7	46.7	50.9	60.9	52.1
Equipment Use	5.4	5.1	3.8	3.0	3.5
Railroad	2.5	4.5	1.2	1.1	1.5
Children	4.5	5.7	4.4	3.6	5.0
Miscellaneous	4.2	3.4	3.2	3.1	4.6

FIVE YEAR SUMMARY FIRE STATISTICS

Fiscal Year	FOREST LAND					NON FOREST LANDS		ALL LANDS	
	Total Area Protected	Number		Land % Area Burned	Average Acres Per Forest Fire	Number Non-Forest Fires	Acres Non-Forest Burned	Total No All Land Fires	Total Acres
		Forest Land Fires	Forest Land Burned						
1981-82	12,031,090	6,459	28,868.8	.27	4.5	1,270	3,840.8	7,334	32,709.6
1982-83	12,031,090	2,572	7,825.1	.06	3.0	588	1,325.4	3,160	9,150.5
1983-84	12,031,090	5,137	23,378.4	.19	4.6	949	3,272.1	6,086	26,650.5
1984-85	12,031,090	12,487	105,421.6	.80	8.4	1,773	8,744.9	14,260	114,166.5
1985-86	12,031,090	5,889	34,373.7	.28	5.8	988	3,658.2	6,877	38,031.9
Five Year Average	12,031,090	6,509	39,973.5	.34	5.3	1,118	4,168.3	7,543	44,141.8

Nurseries And Tree Improvement Section

Nurseries

The Forestry Commission operates four forest tree nurseries for the production of seedlings for South Carolina landowners. This year 65,733,810 seedlings were grown and shipped. Of these, 269,000 were shipped out-of-state after all orders from South Carolina landowners were filled.

South Carolina's wood using industries planted 66,074,225 seedlings on company lands. These consisted of 38,707,000 grown in the state by industry nurseries, 16,477,225 grown by Commission nurseries, while 10,890,000 were brought in by industry. A grand total of 124,381,360 seedlings were planted in the state during the year.

Twenty different tree species were grown at the state nurseries with 95% of these being genetically improved. Although the Commission was able to meet most seedling demands, the supplies of a few species were exhausted before transplanting began.

This Spring, seeds were planted to grow 74,594,500 million seedlings for the 1986-87 planting season.

Research

The Forestry Commission continues cooperative research projects with Clemson University, Auburn University and the U. S. Forest Service. The Commission also maintains membership in the North Carolina State Tree Improvement and Hardwood Research Cooperative and the Auburn University Southern Forest Nursery Management Cooperative.

Containerized Seedlings

Specialized needs existed for seedlings other than bare root stock grown at Commission nurseries. To meet these needs, a double bay greenhouse was constructed in 1982 at Creech Seed Orchard, Wedgefield. This greenhouse and associated slathouses give the Commission the capacity to grow one million containerized seedlings annually.

The first crop of 130,000 was distributed to landowners in June 1983. Distribution of the current crop, 630,525, will be completed in July 1986 and consist of Improved Virginia, Coastal loblolly, Piedmont loblolly, Pitch pine and Leyland cypress.

Forest Tree Seed Collection Program

Each year the Forestry Commission collects or purchases pine cones and other seed for seedling production. Field office personnel play a vital role in the collection program. During the past year walnut, baldcypress, redcedar, yellow poplar, improved virginia and loblolly pine were purchased.

Yields from Commission seed orchards in 1985 were considerably lower than in 1984.

	Bushels of Cones	Pounds of Seed
Improved Coastal Loblolly	291	506
Improved Coastal Loblolly (disease resistant)	60	104
Improved Piedmont Loblolly	1,654	3,296
Improved Piedmont Loblolly (disease resistant)	240	477
Improved South Carolina Slash ..	389	263
Improved Georgia Slash	276	168
Improved Longleaf	494	255
Improved Coastal Loblolly (1.5 Generation)	156	105
Improved Piedmont Loblolly (2nd Generation)	9	2
	<hr/>	
Grand Totals	3,569	5,176

It is anticipated that the orchard loblolly seed will produce 40,000,000 seedlings which will be available to South Carolina landowners.

Through the Clemson University Department of Seed Certification, 146 acres of Commission orchards will produce seed meeting "Blue Tag" certified standards and 22 acres meeting select standards. Seedlings from this seed will be available in the 1986-87 planting season.

Seedling Production by Species

Improved Coastal Loblolly Pine	26,125,000
Improved Piedmont Loblolly Pine	34,349,000
Regular Coastal Loblolly Pine	818,810
Regular Piedmont Loblolly Pine	617,000
Longleaf Pine	1,557,000
Improved Slash Pine	106,000
Improved Virginia Pine	1,241,000
Improved White Pine (2-0)	469,000
Baldcypress	101,000
Arizona Cypress	4,000
Redcedar	204,000
Yellow Poplar	45,000
Improved Sycamore	44,000
Sweetgum	15,000
Black Walnut	31,000
Crepe Myrtle	1,500
Dogwood	4,000
Redbud	<u>1,500</u>

Total

65,733,810

Containerized Seedling Production

Greenhouse -- Creech Seed Orchard

Virginia Pine	10,112
Improved Piedmont Loblolly Pine	112,240
Improved Coastal Loblolly Pine	447,173
Pitch Pine	49,000
Leyland Cypress	<u>12,000</u>

Total

630,525

Tree Seedling Distribution by Landowner Classification

Seedlings Planted in the State by Land Ownership:

Land Ownership	Percent of Total	Number Trees Planted
Farmers	15	18,505,125
Christmas Tree Growers	1	1,726,380
Other Individuals	21	20,478,030
Lumber & Other Forest Industry	1	3,250,000
Pulp & Paper Companies	46	62,824,225
Non-Forest Industries.....	7	10,713,300
Schools	-	75,100
State Forests	1	435,700
Other State Lands	1	810,600
City, Town, County	-	125,500
Federal Lands	4	5,100,900
Associations/Clubs	1	336,500
Total	100	124,381,360

B. Source of Seedlings Planted in the State

1. Nurseries in South Carolina

S. C. Forestry Commission	65,464,810
Champion International	6,731,900
International Paper Company	10,579,250
Westvaco	21,996,000
Weyerhaeuser	2,243,000
Total	107,014,960

2. Nurseries Outside South Carolina

Continental Forest Investments	1,790,000
Federal Paper Board	200,000
Georgia Forestry Commission	100,000
Hiwassee	6,444,000
N. C. Forest Service	946,000
Union Camp	3,656,000
U. S. Forest Service	1,290,400
Weyerhaeuser	2,940,000
Total	17,366,400

3. Seedlings donated by Industry Through the Forest Productivity Program

Union Camp	1,000,000*
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D. State Nursery Seedlings Shipped

Out Of State.....	269,000
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* Included in Item #2 above.

Seedling Survival

Survival checks were made on 10% of seedlings planted in 1984-85 on non-industry land ownerships. Field reports indicated 74% average survival. In June 1986, field foresters made preliminary survival checks of the 1985-86 plantings to assess drought impact. Survival was already down to the 50% level.

Number of Landowners by Percent Survival Class*

District	Survival %			Total Number Plantings
	0-49	50-70	71-100	
Camden	7	12	21	40
Florence	6	6	17	29
Kingstree	3	2	15	20
Newberry	8	10	30	48
Orangeburg	3	12	24	39
Spartanburg	10	13	18	41
Walterboro	3	2	21	26
State Wide	40	57	146	243

* Survival samples of 1984-85 plantings (1 year old seedlings).

TOTAL SEEDLING DISTRIBUTION BY COUNTY; SPECIES; AMOUNT

County	Improved Coastal Loblolly	Regular Coastal Loblolly	Improved Piedmont Loblolly	Regular Piedmont Loblolly	Slash Pine	Longleaf	White Pine	Virginia Pine	Yellow Redcedar	Yellow Poplar	Black Baldcypress	Black Walnut	Sycamore	Arizona Cypress	Sweetgum	Leyland Cypress	Miscellaneous	Grand Total
Abbeville			2,583,800	79,000			2,000	23,500	1,000			1,500						2,690,800
Aiken	1,368,500	40,200	1,807,500			36,300	7,000	41,000	13,500	1,500		1,500				450		3,317,450
Allendale	2,354,000		1,500					4,500								50		2,360,050
Anderson			769,500	6,000	500	500	9,100	40,500	3,000	2,500	1,000	1,000	1,000		1,000	250		835,850
Bamberg	1,730,975	41,500					1,025	6,000	500	500			1,000					1,781,500
Barnwell	2,577,500	20,000	19,500		500	221,500	3,000	22,000	5,000		1,000	500				50		2,870,550
Beaufort	1,278,500	45,000			1,500	1,500	1,000	25,500	4,000	500	1,000	1,500	2,500		500	350		1,363,350
Berkeley	2,656,900		248,572			368,442		16,000	550		500					50		3,291,014
Calhoun	2,314,500		280,000			9,500	5,000	22,000	6,500	500	3,000	1,500				930		2,643,430
Charleston	3,672,500	32,309				21,500	1,500	20,000	9,100	2,000	500	500	2,000					3,761,909
Cherokee	1,021,500						13,000	5,500	1,500	500			500			250		1,042,750
Chester	500		2,755,500	1,000			1,500	87,000	500	1,000			500			300		2,847,800
Chesterfield	57,000		2,693,300		5,000	215,500	1,500	12,900	2,500	1,000	500	500						2,989,700
Clarendon	1,750,550						2,000	27,000	3,000		500		500					1,783,550
Colleton	8,651,325	59,000			2,000	1,500		26,500	7,175	500					500	650		8,749,150
Darlington	458,000		277,100			5,000	9,000	20,600	3,500	1,000	2,500		500		1,000	600		778,800
Dillon	2,159,400					500	500	6,250		500		500				500		2,168,150
Dorchester	6,348,000	56,000				500	3,000	40,500	12,125	500	15,000	1,000				500		6,477,125
Edgefield	1,500		2,047,500	50,000		114,000	2,000	13,500	2,500	500		500				100		2,232,100
Fairfield			5,131,975				2,025	10,500	500				500			350		5,145,850
Florence	1,926,200	1,000			500	46,500	3,500	24,000	8,000	500	2,000	1,000	500		1,000			2,016,700
Georgetown	4,471,000	3,000			30,000	1,000		11,000	2,500	4,000	2,000							4,524,500
Greenville			281,000	5,500		1,000	34,500	26,500	7,000	1,000	1,000	2,000			500	370		360,370
Greenwood			2,722,850			500	2,550	16,500			500					300		2,743,200
Hampton	3,749,925	70,000			64,000	500	75	6,000	1,200									3,891,700
Horry	5,037,200				2,500	52,900	4,500	22,900	7,500		1,500		500					5,129,500
Jasper	3,182,500		20,000		3,500	13,000	600	24,000	2,550			500						3,246,650
Kershaw	29,500		3,609,400	5,000		626,900	4,525	40,500	6,500	500	500	500	500			400		4,324,725
Lancaster			2,253,050			550	1,500	17,400	2,000		500					610		2,275,610
Laurens			3,275,000				12,000	30,000	500	1,000	500							3,319,000
Lee	716,000	1,500	1,375,000			500	2,500	10,600	2,000		500					50		3,108,560
Lexington	498,500	140,000	604,000	500	5,500	146,000	16,000	50,000	20,500	3,000	1,500	2,750	3,000			650		1,491,900
Marion	1,366,200				1,000	52,300	500	17,500	500	500		1,000	500					1,440,000
Marlboro	863,150		224,000		500	27,900	1,000	8,900	3,500		500		1,000					1,130,450
McCormick			1,906,400					2,500										1,908,900
Newberry			4,221,500	112,000			700	20,000	2,550							700		4,357,450
Oconee			731,000	2,000			49,000	14,500	3,500	500	1,500	2,000					157,000	961,000
Orangeburg	4,000,270	117,000				2,050	18,500	65,200	10,750	500	9,000	1,000				500		4,224,770
Pickens		1,000	637,000	3,000		1,000	46,000	30,000	4,500	4,500	3,000	3,000	4,000		4,000	150		741,150
Richland	1,303,500	1,000	901,500	6,000	500	84,000	9,750	56,500	12,600	500	1,700	1,500	3,200	500		630		2,383,380
Saluda	2,500		2,148,500				7,500	24,000	3,500							900		2,186,900
Spartanburg			887,000	1,000		1,500	29,500	45,000	7,000	500	1,000		1,500		1,000	100		975,100
Sumter	593,090	500	252,500		500	103,500	10,500	58,500	12,000	500			2,000		500	300		1,034,300
Union	32,000		2,313,267	500			6,500	19,000	500							600		2,372,867
Williamsburg	4,551,400	500				2,500		35,500	4,000		1,000	1,000		3,500		450		4,599,850
York			1,470,560				3,500	22,500	1,500	1,000		1,500	1,000			300		1,501,860
TOTALS	70,723,995	629,509	48,449,274	271,500	118,000	2,160,342	331,350	1,170,250	203,100	31,500	53,200	28,750	26,700	4,000	10,000	12,390	157,000	125,381,270

COUNTY	SEEDLINGS PLANTED 1985-86	GRAND TOTAL PLANTED TO DATE 1929-86	ACRES PLANTED 1929 TO 6/30/86
Abbeville	2690800	50464887	58635
Aiken	3317450	186933103	201369
Allendale	2360050	69541772	76963
Anderson	835850	41987744	45728
Bamberg	1781500	39337259	43917
Barnwell	2870550	101827696	112407
Beaufort	1363350	24340095	28878
Berkeley	3291014	92370823	108140
Calhoun	2643430	28817050	33597
Charleston	3761909	33427111	40537
Cherokee	1042750	26628629	30270
Chester	2847800	65178839	98298
Chesterfield	2989700	115781565	127134
Clarendon	1783550	48105275	54152
Colleton	8749150	100664459	130373
Darlington	778800	28403095	32924
Dillon	2168150	22484490	23999
Dorchester	6477125	62550827	67175
Edgefield	2232100	52360498	62516
Fairfield	5145850	81900235	91718
Florence	2016700	25272167	28562
Georgetown	4524500	107514830	122705
Greenville	360370	24920774	27197
Greenwood	2743200	67746521	67794
Hampton	3891700	79496832	92652
Horry	5129500	65901784	71640
Jasper	3246650	74094577	86937
Kershaw	4324725	158390235	174208
Lancaster	2275610	56657500	66158
Laurens	3319000	76404080	87236
Lee	2108650	22530589	25568
Lexington	1491900	52173797	56815
Marion	1440000	26960705	30805
Marlboro	1130450	42679253	48210
McCormick	1908900	36620275	44848
Newberry	4357450	62349397	74963
Oconee	961000	29830123	33282
Orangeburg	4224770	94186136	109525
Pickens	741150	24075975	26834
Richland	2383380	58996055	66818
Saluda	2186900	33460451	41478
Spartanburg	975100	50135524	54626
Sumter	1034300	56699967	61476
Union	2372867	59620570	68953
Williamsburg	4599850	65628339	79592
York	1501860	50290406	55996
TOTAL	124381360	2775742314	3173608
OUT-OF-STATE	269000	74943941	0
GRAND TOTAL	124650360	2850686255	3173608

YEAR	TOTAL DISTRIBUTED (STATE NURSERIES)	TOTAL DISTRIBUTED ALL SOURCES
1928-29	142,000	142,000
1929-30	148,000	148,000
1930-31	986,000	986,000
1931-32	976,000	976,000
1932-33	996,000	996,000
1933-34	1,031,000	1,031,000
1934-35	7,529,000	7,529,000
1935-36	23,000,000	23,000,000
1936-37	22,000,000	22,000,000
1937-38	11,192,000	11,192,000
1938-39	10,854,000	10,854,000
1939-40	12,244,000	12,244,000
1940-41	21,165,423	21,165,423
1941-42	10,275,037	10,275,037
1942-43	4,742,010	4,742,010
1943-44	5,662,608	5,662,608
1944-45	1,962,600	1,962,600
1945-46	6,402,255	6,402,255
1946-47	1,962,600	1,962,600
1947-48	11,356,990	11,356,990
1948-49	30,338,775	30,338,775
1949-50	29,501,955	29,501,955
1950-51	20,615,315	20,615,315
1951-52	16,619,000	19,619,000
1952-53	22,035,850	32,246,298
1953-54	36,210,100	42,852,314
1954-55	35,373,025	45,182,255
1955-56	34,413,550	42,931,755
1956-57	55,753,600	69,658,736
1957-58	60,846,200	93,369,084
1958-59	123,985,000	166,351,000
1959-60	147,146,365	187,516,418
1960-61	145,609,075	158,330,575
1961-62	71,892,420	83,844,470
1962-63	56,191,241	64,201,541
1963-64	51,445,597	62,423,597
1964-65	49,009,893	60,683,493
1965-66	42,310,685	56,529,185
1966-67	48,575,190	69,597,590
1967-68	39,970,136	58,812,136
1968-69	29,529,285	51,453,285
1969-70	31,415,430	49,202,630
1970-71	31,939,880	54,540,880
1971-72	23,677,925	41,357,225
1972-73	30,977,800	45,239,100
1973-74	28,443,000	42,305,500
1974-75	40,081,500	55,996,500
1975-76	40,664,387	59,063,387
1976-77	39,795,375	59,238,275
1977-78	45,734,500	64,380,200
1978-79	43,009,533	65,936,933
1979-80	46,374,919	76,206,619
1980-81	53,512,622	86,419,513
1981-82	55,727,828	87,793,028
1982-83	47,798,858	86,265,299
1983-84	50,169,612	100,394,312
1984-85	51,635,770	107,717,581
1985-86	65,464,810	124,381,360
TOTAL	2,028,423,529	2,807,124,642

Forest Tree Improvement

A forest tree improvement program was begun in 1963 by the Forestry Commission to provide genetically improved seed for all loblolly, slash, and longleaf pine seedlings grown in Commission nurseries. This program was expanded in December 1983 with the acquisition of 1,594 acres of land near Tillman in Jasper County. This site, named for C. H. Niederhof, former Forestry Commission Chairman, will be the location of the Commission's second and third generation operational orchards.

Clone Banks

Coastal Loblolly--New Plantation Selections .	2.2
Piedmont Loblolly--New Plantation Selections.	<u>5.8</u>
Total	8.0

Progeny Test

First generation progeny test plantings have yielded sufficient data to discontinue measurement and maintenance of progeny plantings except for: 1972 and 1975 Piedmont Loblolly Main in Saluda; 1981 Coastal Loblolly Main on Manchester State Forest; the Piedmont Loblolly General Combiner in Saluda and the Coastal Loblolly General Combiner in Marion. Measurement and maintenance of the South Carolina and Georgia slash pine progeny plantings will continue. Open pollinated first generation longleaf tests have been established at Manchester and Sand Hills State Forests.

Seed Orchards

Creech Seed Orchard-Wedgefield

	Acres
Coastal Loblolly	31
Coastal Loblolly (disease resistant)	5
Piedmont Loblolly	40
Piedmont Loblolly (disease resistant) ...	5
Slash--South Carolina origin	17
Slash--Georgia origin	22
Longleaf	12
Arizona Cypress	1.25

Creech Seed Orchard--Manchester State Forest

Coastal Loblolly--Second Generation	10.2
Piedmont Loblolly--Second Generation	13.4

Green Savannah Seed Orchard--Manning

Coastal Loblolly--1.5 Generation	39
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Niederhof Seed Orchard--Tillman

Coastal Loblolly--Second Generation	59.3
Piedmont Loblolly--Second Generation.....	72.2
Virginia Pine	<u>3.4</u>
Total	330.75

Niederhof Seed Orchard

The Niederhof orchard is targeted for a 158 acre expansion in 1987.

An accelerated breeding program is also underway to determine what parent trees will be best suited for the third generation orchard.

Hunting and Fishing

Opening Niederhof Seed Orchard to controlled hunting and fishing continues the Forestry Commission's concept of multiple use management of state owned lands. Hunting and fishing rules, regulations and guidelines have been adopted and are being administered by the Forestry Commission.

The following schedule relates to all wildlife activities.

<u>Species</u>	<u>Season</u>	<u>Hunt Days</u>	<u>Hours</u>	<u>Restrictions</u>	<u>Fee</u>
Deer	Aug 18 Dec 29	Saturday	Dawn-9AM 3PM-Sunset	Still Hunt	\$10
Quail	Jan 1 Feb 26	Saturday	Dawn Sunset	Max 3 hunters per party	\$5
Turkey	Mar 16 Apr 27	Saturday	Dawn Sunset	Stalking	\$5
Rabbit	Jan 2 Feb 27	Wednesday	Dawn Sunset	No Dogs	\$2.25
Squirrel	Jan 5 Feb 23	Saturday	Dawn Sunset	No Dogs	\$2.25
Dove	In season	days announced	Noon Sunset		\$2.25
Game Fish	Jan 2 Aug 14	Saturday	Dawn Sunset	No gasoline motors	\$2.25
Permits Issued and Revenue Received					
	Number Participants		Number of Use Days		Revenue
Deer	275		18		\$2,750
Quail	49		7		245
Turkey	24		7		120
Fish	408		34		816
	---		---		----
Totals	756		66		\$4,011

(includes "gratis" permits issued)

(No applicants for rabbit, squirrel, or dove)

Land Management

The third generation orchard area is leased by contract over a three year period beginning January 1984 at a rate of \$16.00 per acre based on 268 acres of cultivated land. Annual rental revenue will be \$4,288. No land was available for rent in the second generation orchards due to expansion.

Timber sales were made on 25 acres. A total of 124,278 board feet of timber and 182.5 cords of pine were sold for \$19,595.

Checks were presented to Jasper County Treasurer's Office as follows:

2/18/86	<u>\$6,107.40</u>
Total (1984-86).....	\$10,169.90

Timber sales are complete in the second generation orchard.

Information And Education Section

The Information and Education Section conducted two primary promotional campaigns this year. The first was begun to recognize certification of the Commission's genetically improved forest tree seed. "Tree Improvement in South Carolina," a 4-color brochure detailing the steps in this effort, was produced. In addition, a video news release featuring the State Forester and the Commissioner of Agriculture sowing the first crop of certified seed was prepared and distributed to the news departments of 10 commercial television stations. The tree improvement theme will be continued with the production of a 10-minute video program and an exhibit in the 1986 State Fair in Columbia.

The second thrust was a follow-up to last year's promotional theme "Our Forest Practical and Pretty." In this effort, an exhibit was placed in the '85 State Fair and in the Salute to Agriculture held at the State Fairgrounds in May. The exhibit shows the many products derived from the forest--paper, wood and chemicals as well as the beauty, recreation and watershed protection. These messages and others, complete with graphics, photographs, and transparencies are provided to district and field offices for display throughout the state.

Publications

Several publications and promotional articles were prepared and/or reprinted: "Planting Successful Seedlings," the second grade activity booklet "You Can Do It," "Equipment and Services," the seedling price list, plastic litter bags, and fire prevention book covers. Three issues of Tree Country were produced, and a feature article was written for American Forests on growing Christmas trees in the Southeast. Two folders and periodic news releases were distributed publicizing the 1986 Conservation Reserve Program.

Video

Video segments were prepared showing the Commission's aerial ignition capability, mountain fire fighting, seedling lifter, clay slurry system at Tilghman Nursery, and an urban forestry interview. Public service announcements were prepared on urban forestry, water quality, and forest tree seedlings.

Urban Forestry (Tree City USA)

Thirteen Tree City USA Certifications, including 3 new ones.

Speaker at Governor's Beautification Conference.

Met with representatives from 7 communities reference Tree City.

Secured grant for urban forestry video/activity booklet.

Initiated urban forestry resource material file and distribution.

Training

The Section presented training and/or assisted with training in the following areas: public speaking and presentation preparation, Urban Forestry, Acid Rain, Project Learning Tree, Fire Prevention, an in-house personnel tour, a writing workshop, and the Youth Conservation Camp.

Awards

South Carolina Network, a syndicated radio news network serving 65 radio stations was awarded the Bronze Smokey Award for contributions to fire prevention in South Carolina. A forestry award was initiated for the South Carolina Young Farmers in cooperation with Georgia-Pacific and Stone Container Corporation.

Arbor Day activities continued with distribution of an updated thirty-second public service announcement to South Carolina television stations, production of a new Arbor Day poster, and the awarding of the International Society of Arboriculture's Gold Leaf to Columbia Action Council and Cades-Hebron Elementary School in Williamsburg County.

Sign Shop

Cabinets were constructed for the new Florence District Office. Signs for Piedmont Nursery, Florence District, the State Tree Farmer, and nine fire towers were constructed and/or rebuilt. The sign shop foreman continues to provide warehousing and distribution of education and prevention materials, as well as maintenance and upkeep for two vans.

Policy and Procedures

Fiscal year 1985-86 was a year of organizational development. Policies and procedures were written governing I&E's responsibilities, media contacts, audio-visual equipment responsibility, and urban forestry.

Equipment Purchase

A portable video field recorder, a 1/2" video recorder/player, a monitor/receiver, and 2 slide projector stackers were purchased. In addition, 35mm cameras were purchased for each of the seven districts.

INFORMATION AND EDUCATION SUMMARY BY DISTRICTS

District	School Programs		Talks		Fire Prevention Programs		Workshops		Arbor Day		Radio	TV	Wire			
	No.	Attend.	No.	Attend.	No.	Attend.	No.	Attend.	No.	Attend.			Print	Services	Parades	Exhibits
Camden	58	3887	81	2475	41	2710	14	2646	15	1827	2	1	20	0	11	3
Florence	48	2702	16	266	9	370	5	136	4	225	21	2	60	0	10	3
Kingstree	8	439	13	334	22	2130	6	90	14	1109	17	4	81	0	3	2
Newberry	75	4405	45	1349	8	544	25	746	13	980	44	0	37	0	20	14
Orangeburg	22	1311	19	612	26	1201	28	594	1	10	3	2	35	0	7	5
Spartanburg	48	1700	50	907	6	264	37	1448	2	430	55	37	97	0	13	7
Walterboro	13	396	26	624	10	221	12	239	1	60	43	49	55	0	10	9
Total Dist.	272	14840	250	6567	122	7440	127	5899	50	4641	185	95	385	0	74	43
State Forests	2	46	0	0	0	0	2	56	0	0	0	0	4	0	0	1
Nurseries	4	138	13	172	0	0	2	160	0	0	3	1	6	0	0	0
Columbia	4	175	45	1514	8	155	32	436	0	0	52	86	93	85	0	8
Grand Total	282	15199	308	8253	130	7595	163	6551	50	4641	240	182	488	85	74	52

Training And Safety Section

The Training Section plans, coordinates, and evaluates the Forestry Commission training in all subject areas.

Each year a training schedule is prepared in cooperation with all program managers. This helps to set priorities and to ensure that needed training is scheduled, planned, and presented in a logical order.

Standard training programs have been prepared for new employees in all job areas. These programs will ensure that all subjects are covered in a logical order and will help the new employee reach the standards for the assigned job as soon as practical. Programs are in use for foresters, district rangers, county rangers, district forest technicians, fire tower operators, wardens, mechanics, radio technicians, staff assistants/clerks, and nurserymen/seed orchard managers.

A training library including manuals, films, tapes, slides, lesson plans, etc., is maintained.

Most training is done using Forestry Commission personnel as instructors. Other schools and instructors are utilized when possible. These sources include the U. S. Forest Service, Clemson University, University of South Carolina, South Carolina State Personnel Training Division, industry representatives, the South Carolina Criminal Justice Academy, and others.

Training highlights for 1985-86:

Basic Fire Fighting School, four days. This was conducted for all new personnel fire control responsibilities.

Prescribed Burning School, two days; attended by thirty-four people.

Basic Law Enforcement: Three people attended the three-week special basic course at the S. C. Criminal Justice Academy and were commissioned as forest law enforcement officers.

Law Enforcement In-Service, two days. This was conducted at the S. C. Criminal Justice Academy for sixty-three personnel who hold law enforcement commissions.

Fire Team Training, two days. Conducted for sixteen new members of the Forestry Commission's Fire Team.

Rural Fire Department Training: This program, conducted by the Forestry Commission to train Rural Fire Department personnel, was presented to twenty-one departments with 229 personnel receiving training.

Instructor Training Course, five days. Twenty-five personnel completed this course which is designed to improve the communication skills of Forestry Commission personnel.

Defensive Driving Courses: were conducted in each district and the Central Office for 510 employees in an effort to improve the safety of Forestry Commission personnel.

First Responder Courses, five days. Three of these first aid courses were conducted for sixty-eight Forestry Commission personnel to provide trained personnel in all parts of the state.

Personnel Fire Safety Equipment: was issued to fire fighting personnel. Training in the use of this equipment was conducted in each district.

Ranger Technician Training Program: Seven Forestry Commission employees this year completed the forest technician training program designed for County Rangers. This program normally requires three years of study, on-the-job training, and experience to complete. These employees will assist foresters in providing services, such as timber marking, prescribed burning, and reforestation assistance to private non-industrial woodland owners in the counties where they are assigned.

Insect And Disease Section

The Insect and Disease Section in cooperation with the State Division of Plant Industry and the U. S. Forest Service maintains a program to detect, evaluate, and suppress forest pests. Through cooperative agreements, these agencies make their technical assistance and advice available to the Forestry Commission.

The current forest pest detection and reporting system involves the reporting by field foresters of forest pests that are causing abnormal losses, require control action, or which may present new problems. Aerial surveys are made periodically for specific pests to determine occurrence and the need for suppression action.

Major Insect Problems

Southern Pine Beetle

A new southern pine beetle outbreak began in June of 1985. Losses during fiscal year 1985-86 were the highest ever recorded for the first year of an outbreak cycle in South Carolina. The outbreak began in a five-county area of the midlands but by June had spread through 14 piedmont and coastal counties. Infested counties included Charleston, Chester, Colleton, Dorchester, Edgefield, Fairfield, Greenwood, Kershaw, Lancaster, Lexington, Newberry, Richland, Saluda, and York. Pine mortality included 124,557 cords and 93,423,405 board feet with a value of \$15,590,856. At the end of June 79,883 cords and 5,481,083 board feet of killed pine had been salvaged bringing landowners \$1,746,523. Salvage and control efforts were severely hampered by a glut in the wood market and other factors. Of the total volume killed only 23% was salvaged. This year's outbreak caused approximately 24,000 acres of pine forest to revert to non-productive land. The outbreak was projected to last 1-2 years before subsiding.

Hardwood Defoliators

Defoliation of bottomland hardwoods by cankerworm and forest tent caterpillar appeared to decline sharply during 1985. The Insect and Disease Section received no requests for evaluations or technical assistance with suppression projects.

Gypsy moth egg mass surveys detected no egg masses this year. No active Gypsy moth infestations existed in South Carolina during 1985.

Major Disease Problems

Oak Wilt

Oak wilt disease has been identified in Chesterfield, Kershaw, Lancaster, Lee, and Richland counties. It appears to be static and causing losses only to low value oaks. Since there is potential for loss of valuable trees, including shade trees, periodic surveys are made to evaluate the spread.

Dutch Elm Disease

Dutch Elm disease has been confirmed in Aiken, Anderson, Cherokee, Chester, Chesterfield, Edgefield, Fairfield, Greenville, Greenwood, Kershaw, Lancaster, Laurens, Lexington, Marlboro, Newberry, Oconee, Pickens, Richland, Saluda, Spartanburg, and York counties. It is expected to gradually spread through the state because the primary agent of spread, the smaller European elm bark beetle, occurs statewide.

Integrated Pest Management

The Forestry Commission, Clemson University, and the U. S. Forest Service began an integrated pest management demonstration project in South Carolina in 1982. During the first phase of this project, the Commission acquired a portable sawmill. The mill is being used to demonstrate the feasibility of salvaging timber from small southern pine beetle spots by sawing the infested wood into lumber at the site of the beetle infestation. Demonstrations of the mill were conducted in the Coastal Plains and Sandhills regions.

Miscellaneous Insect and Disease Checks

Commission foresters made approximately 2,963 field checks of insect and disease problems and made recommendations for prevention and control. Other inquiries were handled by telephone, mail, and personal contact.

Insect and Disease Laboratory

During the year the Insect and Disease Laboratory processed 143 samples. These were submitted for analysis by Commission employees and private individuals. Recommendations for control of various pests identified were given where needed.

STATE FORESTS

There are four state forests operated by the Forestry Commission:

Cassatt State Forest (Kershaw County).....	462 acres
Harbison State Forest (Richland County).....	2,188 acres
Manchester State Forest (Sumter County).....	28,830 acres
Sand Hills State Forest (Chesterfield/Darlington Co)	92,000 acres

It is the objective of the Forestry Commission to practice the principles of multiple use and sustained yield timber management on forest lands under the agency's jurisdiction and to promote practices to protect and enhance environmental quality in the management of all forest ownerships.

Payment to Counties

Twenty five percent of the gross receipts of all state forest operations is paid in lieu of taxes to the counties in which the forest is located. This year payments to counties will be:

Chesterfield (Sand Hills State Forest).....	\$ 47,555.07
Darlington (Sand Hills State Forest).....	1,718.57
Sumter (Manchester State Forest).....	171,755.75
Richland County (Harbison Forest).....	2,079.80

In the past 28 years since the passage of this act, the Forestry Commission has paid a total of \$3,078,054.32 to counties where state forest lands are located as follows:

Chesterfield.....	\$1,792,019.25
Darlington.....	39,850.21
Sumter.....	1,178,340.78
Richland.....	59,349.59
Kershaw.....	8,494.49

Cassatt State Forest

Cassatt State Forest, with 462 acres, is located about two miles north of Cassatt, S C. It was deeded to the state by the late J R West on May 28, 1935. Cassatt Lookout Tower and a dwelling for the tower attendant were erected by the Civilian Conservation Corps (CCC) and continue to be used for fire detection.

Sand Hills State Forest personnel maintain a system of boundary firebreaks. Breaks have been plowed around plantations and along the public road which crosses the property. All boundary lines have been marked.

Harbison State Forest

Harbison State Forest, containing 2,188 acres is in Richland County. No wildfires occurred on the forest during the year. Two timber sales were conducted with 236 cords of pine pulpwood and 146,932 board feet of pine sawtimber sold for \$24,199.68.

Physical development of Harbison consisted of the Construction of one mile of road and a public parking area. A Land and Water Conservation Grant from the Department of Interior provided money for the road construction materials.

Manchester State Forest

Manchester State Forest, located south of Wedgefield in Sumter County, contains 28,830 acres. From 1939 to 1955, this land was leased by the Forestry Commission from the Federal government. The state received title to the property on June 28, 1955.

Silvicultural Practices

There were 344 acres prepared for tree planting with mechanized equipment. There were 331 acres prescribed burned and 87 acres of longleaf pine were spot treated with herbicide for hardwood control. A total of 277 acres were planted and 64 acres were spot planted with the following species:

Longleaf pine	49,500
Improved Longleaf Pine.....	62,000
Improved coastal loblolly pine.....	99,000
	<u>210,500</u>

Forest Protection

Four forest fires occurred during the year burning a total of 6.2 acres. Firebreaks were maintained in high value and high hazard areas. Periodic checks were made for insect and disease damage. Research in cooperation with the Southeastern Forest Experiment Station is being conducted on insect and disease prevention.

There were 7 cases prosecuted for forest and game law violations.

Recreation

Recreation other than hunting and fishing includes hiking, berry picking, sightseeing, motorcycling, horseback riding, and field trials. A total of 20 organized group activities were held on the forest involving an estimated 2420 people.

Game Management

An intensified program of game management is conducted in cooperation with Sumter County Game & Fish Association and the S C Wildlife and Marine Resources Department. Endangered species biologists provided recommendations for managing mature longleaf pine as colony sites and support stands for the red cockaded woodpecker. In addition to utilizing power line right-of-way for wildlife plantings, permanent wildlife fields and food patches have been established. Planting and/or maintenance was carried out on 63 wildlife plots containing 137 acres.

Total receipts for hunting and fishing permits were \$9,872.50.

<u>Game</u>	<u>Number of Permits</u>
Deer	970
Dove	613
Quail	269
Rabbit/Squirrel	660
Raccoon	25
Fox	5
Fish	1619

Land Rentals

Agricultural Lands

Agricultural lands, consisting of 862 acres, are leased to local farmers for three year lease terms. Planting of soybeans, corn and wheat on these lands enhance wildlife management.

Shaw Air Force Base

The U S Air Force leases 7,687 acres of the forest for an aerial gunnery range to train pilots from various Air Force bases in the southeastern US. The South Carolina Air National Guard has access to the range and uses it frequently.

Receipts

Receipts for Operating Budget

Fuelwood -- 162 permits, 161 cords	\$ 1,940.00
Pinestraw.....	13,641.99
Hunting and Fishing permits.....	9,872.50
TOTAL.....	\$25,454.49

Timber Sale and Other Receipts

Timber Sales-3,481,969 board feet, 2,796 cords....	\$633,143.25
Rentals, Leases, and Miscellaneous Sales.....	58,253.32
Sales On Other Commission Lands.....	28,664.68
TOTAL.....	\$720,061.25

Niederhof Seed Orchard Development Fund

Payment on Niederhof Seed Orchard Land.....	\$177,400.00
S C General Fund Payment.....	108,670.00
Reforestation: equipment, supplies.....	42,528.35
Payment to Sumter County.....	178,401.97
TOTAL.....	\$507,000.32

Sand Hills State Forest

Sand Hills State Forest, located in Chesterfield and Darlington Counties, contains 92,000 acres. Half of the area is administered by the U. S. Fish and Wildlife Service as the Carolina Sandhills National Wildlife Refuge. The Forestry Commission is responsible for forest fire protection on the refuge portion and administers the other half as a multiple use forest. Leased from the federal government in 1939 for 95 years, the forest became self-supporting in 1966. Revenue accrued over expenses each year is expended on the forest for further improvements and expanded operations.

Silvicultural Practices

Prescribed burning using the Commission's aerial ignition service was carried out on 5,505 acres on the wildlife refuge. Trees were planted on lands that were harvest-cut. A total of 206 acres were planted with 147,950 Improved Longleaf pines.

Forest Protection

Forest boundary lines were disked and firebreaks disked along major roads and railroads for fire protection. Eleven wildfires occurred, burning a total of 99.4 acres. Forest insects and diseases were no problem during the year.

Recreation

The Sugar Loaf Mountain recreation area continued to receive heavy use. Besides the naturally formed 150 foot high Sugar Loaf Mountain, there are five picnic shelters, a lake, fireplaces, a flowing well, parking areas, and latrines. Scout troops and other organized groups use this area and facilities for overnight camping. Many auto touring visitors drive through this forest, especially to view the fall leaf colors and to enjoy the blooming rhododendron near Sugar Loaf Mountain in the spring. A nature trail is available for hiking. The trail winds through a typical sand hill branch and an undisturbed wooded area containing many species of mature trees. Use by horse riders continues to increase each year.

Game Management

Hunting and fishing are allowed in season by permit on the forest area. Cooperation with the State Wildlife Resources Commission and the U. S. Fish and Wildlife Department was excellent in game law enforcement. Deer, dove and quail food patches are planted and maintained by the Forestry Commission.

There are thirteen ponds available for fishing on the forest. These are maintained through annual fertilization and weed control. Fishing permits this year totaled 2360.

Dove, quail, squirrel, deer, and rabbit hunting were permitted on the state forest portion. Permit sales total 62 for dove, 39 for squirrel, 313 daily and 6 season quail, 73 daily and 51 two-week season for deer, and 6 rabbit.

Land Rental

Twenty-one farmland contracts comprising 857 acres were renewed in 1985-86. All of the rented farmland is planted to corn, beans, grain, or one of the lespedezas. All of these crops benefit the wildlife program.

Receipts

Pulpwood - 6,785 cords Pine	\$118,224.05
Fuelwood - 46 cords	552.00
Straw - 103,504 bales	26,932.50
Rentals	10,955.93
Hunting and fishing permits	6,275.00
Miscellaneous	1,342.52
TOTAL	\$164,282.00

STATE LANDS FOREST MANAGEMENT PROGRAM

The state lands forest management program provides technical forest management assistance to S. C. State agencies which own forest land.

During the year seven agencies requested and received forestry assistance. Forest product sales totaled 1,134,258 board feet of sawtimber and 3,890 cords of pulpwood providing an income of \$221,582.31. Two hundred and twenty-five acres were site prepared and planted with tree seedlings.

Work accomplished

John de la Howe School - Prepared a detailed timber appraisal on 600 acres of timber land associated with the development of a school wilderness camp.

S. C. Research Authority - Prepared management plans for industrial park tracts located in Dorchester and Richland counties (486 acres).

S. C. Wildlife and Marine Resources - Revised forest management plans for Yawkey Plantation, Webb Wildlife Center, Bear Island, and Santee Coastal Reserve (3500 acres).

S. C. Department of Youth Services - Assisted in the preparation and planting of five acres of Christmas trees.

